job FUTURES

Occupational Outlooks

**An
Occupational
Outlook
to 1995**

Volume 1

**1990
Edition**

Canadian Occupational
Projection System
COPS

LM-068/1/E

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Minister of Employment
and Immigration

Ministre de l'Emploi
et de l'Immigration

CANADA

Message from the Minister of Employment and Immigration

It is with great pleasure that Employment and Immigration Canada publishes the third, updated version of *Job Futures*. The demand for previous editions from institutions, counsellors and students across the country has convinced us that an update of the 1988-89 edition would be worthwhile. *Job Futures* has proven to be an important tool in helping Canadians understand current and future labour market conditions.

Job Futures was created by Employment and Immigration Canada's Canadian Occupational Projection System (COPS), to provide counsellors with occupational information that they can use to give better advice to Canadians on career choices, career changes and future prospects.

This 1990 edition of *Job Futures*, which contains additional labour market information and projects to 1995, will serve you even better. People setting out on their career path for the first time, and those seeking new career options, will benefit from the material in this publication.

The federal government's goal is to help Canadians create or take advantage of the best possible career opportunities. That is why, increasingly, our programs are focused on developing Canadian workers' skills to meet the demands of accelerating technological change in the workplace and the need for Canada to compete in an increasingly globalized economy.

We are committed to helping Canadians choose and pursue fulfilling careers. I am confident that the information provided in *Job Futures* will lead you to the sources that will help make your career choices wise ones.

Barbara McDougall

Barbara J McDougall

Minister of Employment and Immigration

Minister of State
Youth

CANADA

Ministre d'État
Jeunesse

Message from the Minister of State for Youth

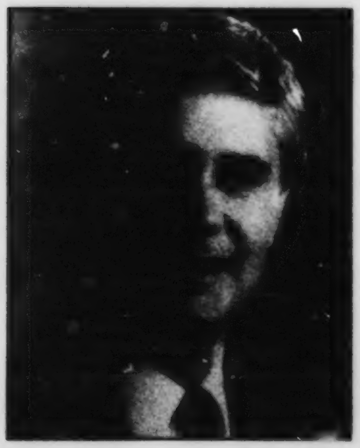
Making the appropriate decisions that will lead to a fulfilling and rewarding career is not an easy task for anyone. It is particularly difficult for young people who often are uncertain about themselves, their talents and their career options.

This decision-making process is further complicated by our changing economy where traditional occupations and professions are being transformed more rapidly than ever before. Making the appropriate career choice — in keeping with one's talents and aspirations as well as labour market realities — is now more complex than ever before.

As we begin the 1990s, nearly 100,000 young people are still dropping out of secondary school every year, a national dropout rate of approximately 30 per cent. Yet we estimate that two-thirds of all jobs created in Canada during this decade will require more than 12 years of education and training. Many of those jobs will demand at least five years of education and training beyond high school. In this climate, it is essential that counsellors and students are provided with timely reference material to have a better picture of the future world of work.

The federal government through the Minister of State for Youth and Employment and Immigration Canada is committed to helping young Canadians choose suitable and fulfilling careers. This third edition of Job Futures is an indication of this commitment to the futures of our Canadian young people.

Whether you are a counsellor or a student, or someone interested in changing careers, *Job Futures,* will give you an understanding of the choices in the job market today and the outlook for these jobs to 1995.



Marcel Danis

Marcel Danis

Minister of State for Youth

Preface

Job Futures is a product of the Canadian Occupational Projection System (COPS), a labour supply-and-demand information and data bank designed by Employment and Immigration Canada.

The occupational information included in these publications includes projections based on data collected and analysed through the Canadian Occupational Projection System. Projections should be interpreted with caution since no one can say with certainty what the future has in store. These projections are not predictions of what will necessarily happen. Rather, they represent one possible path for occupational requirements.

Many trade associations, professional societies, unions and industrial organizations have provided us with valuable career information and insights. Some of these organizations are listed at the bottom of the statistical page for each occupational outlook in Volume One: *Occupational Outlooks*. However, the listing of an organization does not constitute in any way an endorsement or recommendation — either of the organization or of the information it may supply.

The University of Toronto Guidance Centre's Occupational Information series provided valuable corroborative evidence on the observations presented in *Job Futures*, Volume One.

Further, the Occupational and Career Information Branch of Employment and Immigration Canada brought its expertise to bear on the job environment and educational background sections presented in *Job Futures*, Volume One.

This edition of *Job Futures* is the third in what is planned as a regular series of publications on career outlooks in Canada. It embodies the extent of COPS research to date.

Table of Contents

Introduction ix
Explanation of Terms and Headings x
Occupational Outlooks 1
Index of Occupations 399

Introduction

Volume One: Occupational Outlooks

Choosing a career or changing your line of work is a challenge, giving rise to a lot of questions. What occupations can I enter with my educational background? What qualifications do I need to enter a specific occupation? What is the job market like? What jobs are sensitive to technological change? Where do the best opportunities for me lie?

Job Futures helps to answer these questions by providing valuable information on the educational system and on future occupational labour markets. *Job Futures* is designed for students and educational counsellors as well as for people interested in changing careers or re-entering the labour market.

In addition to statistical profiles, *Job Futures* contains descriptive information on various features of occupational labour markets. Representatives of industry, labour, provincial governments and education offered their special perspectives. The result is a comprehensive view of present and future labour market conditions.

Volume One of *Job Futures* provides information on current and future labour market situations for specific occupations. Volume Two concentrates on the link between the educational system and the labour market through analysis of the labour market outcomes for graduates from some 100 fields of study at the post-secondary level.

How Volume One Works

Volume One answers such questions as:

- What exactly does someone in a given occupation usually do?
- What are the normal working conditions for this occupation?
- What sort of education do I need to enter this occupation?
- Is this occupation opening up to women?
- What are my chances of getting full-time or part-time work in this occupation?
- Is employment stable, or can I expect periods of inactivity in this occupation?
- What are the career opportunities for someone in this occupation?
- Are there many job openings expected in this occupation?
- How much do people in this occupation normally earn?

Much of the information in Volume One can be used by young people still in school. It can help them choose a career and set the course of study required to achieve their career aspirations. Similarly, the information in Volume One can help individuals contemplating a career change or a continuation of their education through part-time studies. For these people, *Job Futures* can help target occupational goals and help identify the additional education they may need to reach those goals.

Organization of Volume One

Volume One is organized according to occupation as described in the Standard Occupational Classification. The code numbers (such as 1132, 1171, etc.) and occupation titles are those used by Statistics Canada in the coding of the Census and the Labour Force Survey. The first two digits of the code number indicate the general occupational field (for example, 11 corresponds to managerial occupations); the second two numbers indicate the specific occupation. (Thus, 1132 indicates managerial occupations generally and managers in social sciences specifically.) Altogether, *Job Futures* covers nearly 200 such occupational groups.

Each occupational group has two pages of information devoted to it, one page of statistical data and one of descriptive and analytical text.

The statistical tables are designed for quick and easy reference which allows the reader a ready overview of the labour market situation of the particular occupational group. They include an estimate of the number of people employed in this occupation in 1989, growth comparisons between the 1980s and the early 1990s, and the projected number of job openings over the 1989-to-1995 period. Composition of the group by age and sex, the percentage of part-time employment, the main industries in which the occupation is found and the provinces of employment are also included.

The narrative texts contain brief job function descriptions, information on working conditions, educational requirements, age and sex trends, career ladders and the effects of technological change; labour market assessments; notes on seasonality of employment; notes on sensitivity to changes in the business cycle; and data on earnings.

The analysis and reported figures apply to the occupational title that normally represents an entire occupational group. However, a statement that applies to a group may not apply to each individual occupation within the group. For example, if a statement refers to art restorers, it does not necessarily apply to painting restorers, even though they are both a part of the Technicians in Library, Museum and Archival Sciences group. Not all occupations in the Standard Occupational Classification are listed because not all have easily-recognized supply channels. For some occupations, training is industry specific with low-skill requirements, and promotion is from within. For others, skill requirements are such that high school graduates are the main source of new supply.

Estimates of labour force withdrawals refer only to voluntary departures from the labour force and departures due to death. Statistics on inter-occupational transfers are not included because of lack of data.

An index, organized alphabetically by occupation, is included.

Explanation of Terms and Headings Used in Volume One

This Occupation — the occupational group(s) listed at the top of the page.

All Occupations — all occupations in the labour market including occupations that are not listed in *Job Futures*. It allows you to compare the specific occupation to the average for all occupations.

Number of Jobs 1989 — an estimate of the number of people working in the occupation in 1989.

Average Annual Growth Rates (%) — the average annual percent change in the number of people working in the occupation between 1981 and 1989 and between 1989 and 1995.

Number of Job Openings — the number of jobs that will open over the entire 1989-to-1995 period. This number includes both the number of jobs created as a result of growth in the economy as well as those expected as a result of people leaving the occupation because of death, retirement and returns to the education or household sectors. This number does not include openings that arise when people move from one occupational group to another.

Sex Composition — taken from the 1981 and the 1986 censuses. A comparison to all occupations is included.

Age Composition — also taken from the 1981 and 1986 censuses. A comparison to all occupations is included.

Full-time, Part-time — workers who, at the time of the 1981 and 1986 censuses, identified themselves as being full-time or part-time workers. A comparison to all occupations is included.

Main Industries of Employment — the first line of this table lists the three largest major sectors of employment for the occupation. The next three lines list the main individual industries (based on the COPS industry structure) within the major sectors, to a maximum of three, for the occupation. The percentages represent the proportion of employment found in the sector or industry at the time of the 1986 Census.

Geographic Distribution of Employment — taken from the 1986 Census. It represents the employment distribution of the occupation and not necessarily the distribution of anticipated job openings.

Job Environment — includes several individual occupations found in the group, general job duties and responsibilities of the occupational group. These job descriptions are not definitive; rather, they are intended to provide you with a flavour for the type of work performed by the group and an idea of their job situations.

Educational Background and Skills — the usual educational attainment levels and skills achieved by the people working in the occupational group. There are exceptions to virtually every occupation, so you are cautioned again that this information is to give you a general notion of the education usually required of people in the group.

Nature of Supply — contains information on the types of people that normally enter the occupation. For example, workers entering an occupation may come directly from the educational system, work their way up from another occupation, enter from another country, from the military or from the household sector. Desirable characteristics and possible career paths are also identified in this section. Finally, representation of women, age structure and movements into and out of the occupation may be described.

Market Conditions and Job Prospects — contains information on the job market conditions for the occupation and the factors that affect them. The expected rate of employment growth is compared to that for all occupations. (Overall growth is expected to average 1.5% per year to 1995. Growth expectations ranging from 1.3% to 1.7% are considered about average.)

Since people are hired not only to fill new jobs but also to replace workers leaving existing jobs, the anticipated number of replacement openings is noted. These are estimates of openings resulting from withdrawals because of death, retirement, returns to education and returns to the household. They do not include estimates of the movement from the occupation to other occupations.Occupations which may be among the quickest to decline during a recession but may be among the first to rebound during a recovery are said to be "sensitive to business conditions." This is noted where applicable. Sensitivity to business conditions was gauged by examining employment trends through the 1981-1982 economic recession and the subsequent recovery period.

A description of the technological, demographic, organizational or other factors that affect the group may be included. Occupational employment projections are based on a changing occupational composition of industries. Many occupations increase or decrease their representation within an industry over time for various reasons. Pertinent commentary on some of these reasons and the extent of their impact is supplied where possible.

Earnings — wage or salary information is provided, where available. Other forms of compensation are not included. The primary source of wage or salary information is the 1986 Census of Canada although, where relevant, other sources are used and are identified in the text.

What Job Futures Can't Do

Job Futures is a companion to other publications and should not be treated as stand-alone career information. It provides a reasonable view of expected labour-market conditions in various occupational areas.

Job Futures does not provide complete information on training qualifications, full job descriptions or working conditions. To find out more about these, consult your nearest Canada Employment Centre, or refer to the *Canadian Classification and Dictionary of Occupations (CCDO)*; and the *Directory of Associations in Canada*, 11th ed., Toronto: Micromedia Limited, 1990.

As well, Employment and Immigration Canada offers CHOICES, an interactive computer system that allows students to ask pertinent questions about career choices. For information on CHOICES, contact a Canada Employment Centre or the Occupational and Career Information Branch, Employment and Immigration Canada, National Headquarters, Ottawa-Hull.

For questions or comments on the content of
this publication, please contact:

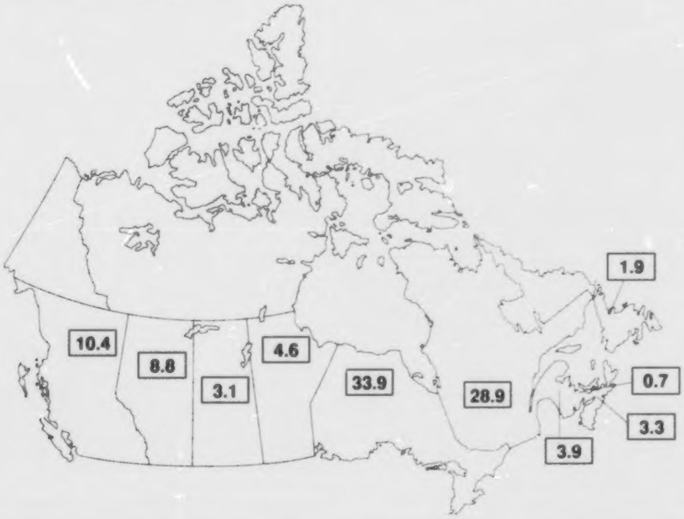
The Director General,
Labour Market Outlook and Structural Analysis Branch,
Employment and Immigration Canada,
National Headquarters,
Ottawa-Hull.

Occupational Outlooks

Inspectors and Regulatory Officers, Government 1116

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	28,969	1.4	1.7	13,797
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	85	15	8	71	21	96	4
	1986	80	20	6	78	16	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (99)
- Federal (48)
- Provincial (32)
- Municipal (19)

Inspectors and Regulatory Officers, Government 1116

Job Environment

This group includes officers at the local, provincial and federal levels whose responsibilities include enforcing and advising on government regulations. This covers a tremendous variety of occupations including tax enforcement officers, patent examiners and inspectors for boilers, buildings, customs, food, health standards, immigration, engineering, pollution control, safety, and weights and measures.

Public health inspectors, for example, act as field representatives for medical officers, aiding them in the enforcement of health regulations. They inspect and investigate the environmental conditions of various establishments to ensure compliance with government regulations and provide information in areas such as insect and rodent control, food problems, housing conditions and institutional sanitation.

Educational Background and Skills

Although requirements vary with each occupation, individuals entering this category should generally be secondary school graduates with some post-secondary education (for example, law and security, public health inspection or environmental health courses at the community college level); should have related work experience; and should be willing to take on-the-job training ranging from two weeks (customs inspector) to 12 months (immigration officer) coupled with in-house classroom training and examinations. For some occupations, such as engineering inspectors and patent examiners, extensive formal training culminating in a post-secondary degree or certificate is required, often in engineering disciplines. Public health inspectors require a college diploma or undergraduate degree (usually a Bachelor of Science), and must be certified by the Canadian Public Health Association. In all instances, government inspectors must be thoroughly versed in the regulations and technologies of the industry in which they conduct inspections. Canadian citizenship is required for most of these positions.

Nature of Supply

The proportion of women in this field has been growing recently, reaching 20% in 1986. Most individuals enter the occupation between the ages of 25 and 29 and leave by the age of 60, implying an average career length of 30 years. In 1986, the average age of this occupation was 41, unchanged from 1981.

Market Conditions and Job Prospects

Employment in this occupational group is not affected by changes in business conditions, as the vast majority of inspectors are public servants. Almost one-half of all government inspectors work at the federal level with provincial and municipal governments accounting for the other half. Employment growth was very strong during the early 1980s but slowed later in the decade. Immigration and health and safety inspectors were two areas which fared very well.

Current employment conditions appear to be stable, judging from the low level of unemployment and its general decline over the past seven years. The hard-to-fill vacancies remain difficult to fill, indicating that job search strategy may intensify. While government austerity measures may slow employment growth, greater public concern for health and safety will probably provide growth in this classification. The employment outlook for this occupational group calls for better-than-average growth over the forecast period. Almost 11,000 job openings over the next six years will be the result of people leaving the occupation because of death, retirement or other reasons. About 15% of government inspectors were 55 or older in 1986, reflecting an higher-than-average occupational age profile.

1985 Annual Earnings	$	
Lowest 10% of Workers	22,898	or less
Average Worker	32,186	
Highest 10% of Workers	43,288	or more

Source: 1986 Census

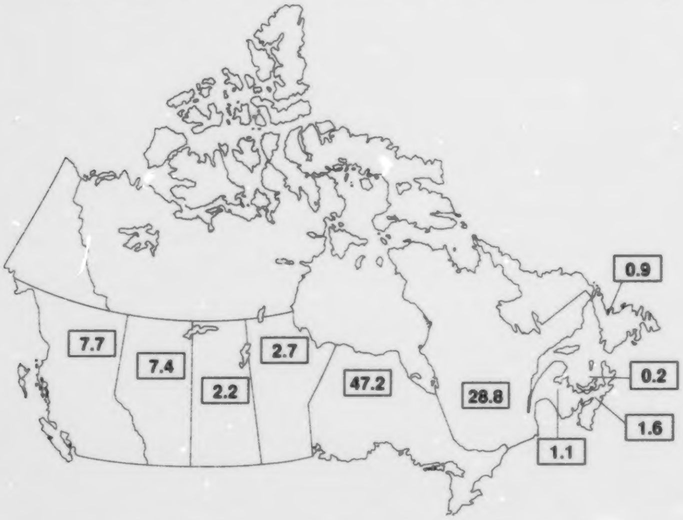
For further information, contact:

Canadian Postmasters and Assistants
Association
281 Queen Mary Street
Ottawa, Ontario K1K 1X1
(613) 745-2095

General Managers and Other Senior Officials 1130

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	182,306	9.8	2.8	102,629
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	91	9	2	76	22	96	4
	1986	85	15	2	79	19	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (24)
- Metal Fabricating (3)
- Food & Beverages (2)
- Printing & Publishing (2)

Services (22)
- Business (9)
- Miscellaneous (4)
- Health and Welfare - Non-Hospital (2)

Trade (20)
- Wholesale (11)
- Retail (9)

General Managers and Other Senior Officials 1130

Job Environment

Positions in this classification pertain to top, or senior management and include presidents, vice-presidents, chairpersons, directors, executive directors and general managers. Besides motivating and directing other workers, senior managers are responsible for planning and organizing: they make decisions regarding overall corporate strategy, company policy and structure, finance and expansion of their organization. They spend much of their time in meetings, assimilating and synthesizing information in order to make effective decisions. Most organizations, whether government, non-profit, business and industry, cultural or educational, rely on the effective leadership of their top management.

Educational Background and Skills

Although an undergraduate degree has become the norm in this occupational group, in many instances a graduate degree is highly desirable. The educational backgrounds of senior managers vary tremendously, ranging from business administration, economics and psychology to engineering.

Most senior managers have extensive experience in management and in their particular organization. Typically, senior managers work their way up the occupational ladder, gaining first-hand knowledge of the firm's operations. The length of this process is reflected in the high average age of the occupation.

Nature of Supply

Although these occupations are currently dominated by men, more women have been entering senior management in recent years. Between 1981 and 1986, their share of top management jobs increased from 9% to 15%. The majority of general managers worked in Ontario (47%) and Quebec (29%). The average age (44) has declined slightly since 1981 when it was 46 and, not surprisingly, there are very few general managers in the 15-24 age group and a greater-than-average share in the 55-59 age group.

Market Conditions and Job Prospects

Between 1981 and 1986, employment in this group increased faster than for other groups. Changing economic conditions and the expansion in the number of medium-sized firms all supported this growth.

Employment in this category is expected to continue to grow faster than overall employment. Over the projection period, about 103,000 positions should open up. Of these, about 70,000 will be replacement positions that become available when people retire, die or leave for other reasons. The number of general managers expected to leave the occupation because of death or retirement is fairly high, reflecting the older age structure of these occupations compared to the labour force as a whole. In spite of this, competition for executive posts is expected to intensify as the labour force ages and the number of qualified and experienced workers applying for these positions increases.

Changing technology may have a minor effect on the demand for this occupational group. The advent of computerized information processing, computer-aided manufacturing, robotics, statistical process control and other technologies has tended to reduce the size of the workforce required by firms and, as a result, their layers of management.

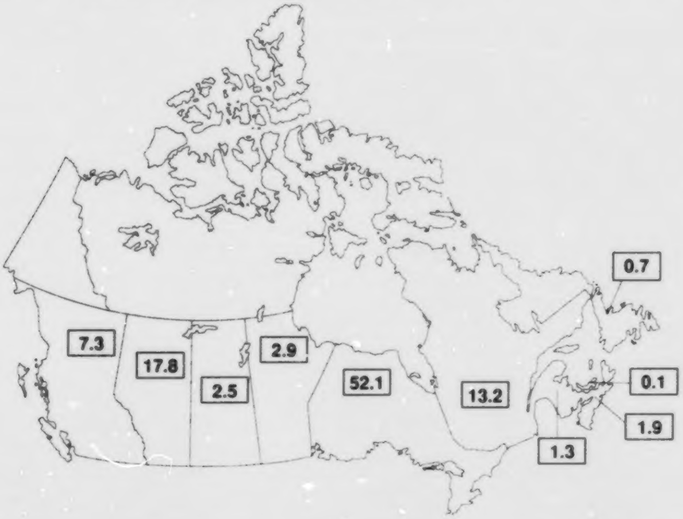
1985 Annual Earnings	$	
Lowest 10% of Workers	20,890	or less
Average Worker	57,704	
Highest 10% of Workers	96,466	or more

Source: 1986 Census

Management Occupations, Natural Sciences and Engineering 1131

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	15,547	3.2	3.2	9,205
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	94	6	2	83	15	99	1
	1986	91	9	1	86	13	99	1
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (31)
- Electrical Products (6)
- Machinery (4)
- Chemicals & Chemical Products (3)

Services (26)
- Business (22)
- Education (2)

Public Administration (13)
- Federal (6)
- Provincial (5)
- Municipal (2)

Management Occupations, Natural Sciences and Engineering

1131

Job Environment

Included in this category are managerial and administrative positions in architecture, data processing, systems analysis, engineering and the life and physical sciences.

The work environment for this occupation varies according to the sector and the level of experience of the employee. The positions range from the supervision of junior employees doing routine work, to the planning of major projects involving substantial investment in human and financial resources. While many managers work in office environments, those in engineering, architecture or geophysics may have to work on-site in temporary quarters to oversee a project. The experience they gain working co-operatively with other specialists and in supervising work projects prepares them particularly well for management positions.

Educational Background and Skills

As with most managerial occupations, these positions are achieved only after years of experience. Most individuals have a university degree in an area of specialization and, in some cases, a post-graduate degree in the same field or in business administration.

Nature of Supply

More and more women are entering these occupations, which until recently have been dominated by men. The majority of managers in natural science and engineering are located in Quebec and Ontario, although Alberta also has a high concentration because of the large resource extraction industry in that province. The average age (42) has remained constant since 1981. The majority of managers in natural science, engineering and mathematics enter these occupations between the ages of 35 and 39, reflecting the need for work experience; they begin to leave between the ages of 60 and 64.

Market Conditions and Job Prospects

Managers with a background in data processing and systems analysis should enjoy better-than-average employment prospects as the micro-computer industry continues to grow, creating new organization roles. The need for direction and advice relating to computer systems and their applications, equipment compatibility, software products and customer service will increase demand for these professionals in a burgeoning computer-literate environment.

The stability of employment within a group depends upon the nature of the industry. Those people working in public administration tend to have very stable employment, whereas people in consulting are less insulated from changing economic conditions which could lead to periods of unemployment.

The importance placed on science and engineering in our society will continue to sustain a great demand for managers with technical expertise. As with other managerial occupations, competition will intensify as the current labour force ages and as more experienced workers compete for jobs. Over the 1989-to-1995 period, there should be about 9,000 job openings for this group, two-thirds of which will be to replace workers who leave the occupation for various reasons.

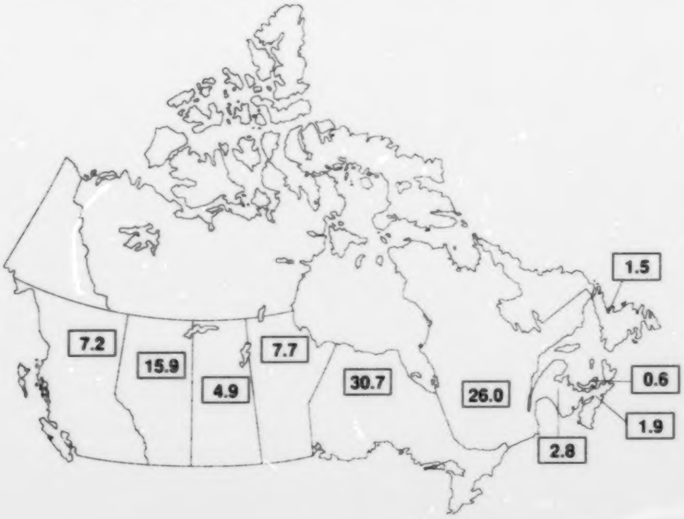
1985 Annual Earnings	$	
Lowest 10% of Workers	30,944	or less
Average Worker	50,927	
Highest 10% of Workers	73,164	or more

Source: 1986 Census

Management Occupations, Social Sciences and Related Fields 1132

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	10,681	4.4	3.2	6,380
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	52	48	6	80	14	93	7
	1986	42	58	6	83	11	91	9
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (68)
- Health & Welfare - Non-Hospital (39)
- Education (15)
- Miscellaneous (5)

Public Administration (26)
- Provincial (13)
- Municipal (9)
- Federal (4)

Trade (3)
- Retail (2)

Management Occupations, Social Sciences and Related Fields

1132

Job Environment

This category includes administrators, such as art gallery managers, community centre directors, museum directors, welfare agency officials and welfare managers. These managers supervise, direct, hire and evaluate employees in such fields as economics, sociology, psychology, social work, law, library, museum and archival sciences, education, vocational counselling and community services. They co-ordinate operations within their departments, implement policies developed by senior managers and formulate decisions with other managers, specialists and subordinates.

Educational Background and Skills

Individuals seldom enter these occupations directly from the formal education system since they usually require several years of experience. Most have a post-secondary qualification in their area of specialization, which may be supplemented with a graduate degree in the same area or in business administration. Prospective social science managers should have good organizational and managerial skills, as well as a thorough knowledge of their organization's operations. They are required to communicate effectively, relate well with people of different backgrounds, and employ financial, human and material resources skillfully.

Nature of Supply

Entrants to this occupational group generally have a degree, diploma or certificate in their area of specialization or in a related field, as well as several years of experience at the working level.

In the social sciences, there are now more women than men in managerial positions: women held 58% of the jobs in 1986, compared to 48% in 1981. Entrants to this field are generally between the ages of 30 and 34, a high range which reflects the time needed to obtain the required education and experience. The average age (40) is therefore higher than for most other occupations.

Market Conditions and Job Prospects

Employment growth for these occupations was stronger than the average over the 1981-to-1989 period, largely because of their concentration in the health services, education and public administration sectors of the economy — sectors which are not as dependent on market conditions as others. This relative independence from economic conditions reduces employment swings, with the result that employment tends to be relatively stable. Since the mid-1980s, employment growth has been above average, with slower growth in the government sector offset by growth in other parts of the economy.

Over the 1989-to-1995 period, employment is expected to increase faster than average, but not as fast as over the previous ten years. About two-thirds of the 6,400 job openings expected during the projection period will be created by managers leaving the occupation for various reasons.

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**16,879**	**or less**
Average Worker	**32,640**	
Highest 10% of Workers	**49,612**	**or more**

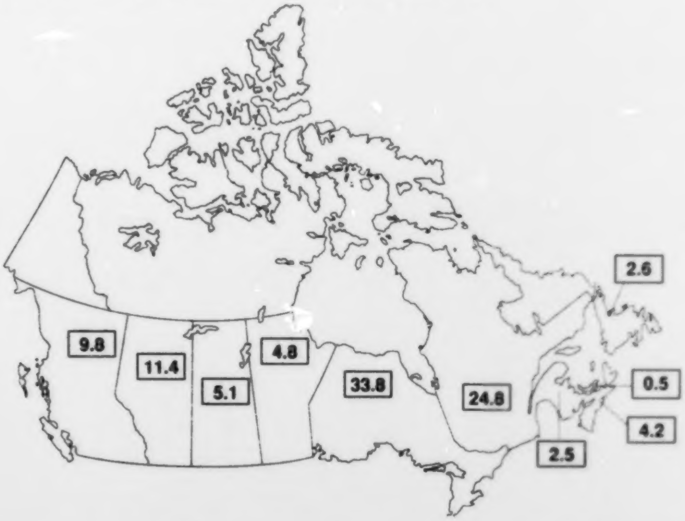
Source: 1986 Census

Administrators in Teaching and Related Fields

1133

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	39,817	2.0	1.4	18,131
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	76	24	2	86	12	96	4
	1986	71	29	2	86	12	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (94)
- Education (89)
- Health and Welfare - Non-Hospital (2)

Public Administration (5)
- Provincial (3)
- Federal (1)

Administrators in Teaching and Related Fields 1133

Job Environment

School administrators are responsible for staffing, scheduling classes, co-ordinating school activities, developing programs, overseeing budgets and representing their schools to outside community groups. Superintendents and assistants, who head the educational bureaucracy in elementary and secondary school systems, are responsible for monitoring budgets and ensuring that schools operate in compliance with school board policy. Principals implement school board and government policy, and monitor school programs. They provide leadership to staff and pupils, and oversee teaching assignments, scheduling, school activities, discipline and classroom procedures. Much of a principal's time is spent conferring with teaching staff and, to a lesser extent, meeting with parents and other members of the community.

This classification also includes university and college registrars, faculty administrators, department heads and presidents. Other administrative positions in educational institutions, such as personnel managers, are listed under their own classification.

Educational Background and Skills

The majority of administrators in the elementary and secondary school systems have a teaching certificate, an undergraduate degree and teaching experience; many have a master's degree in education. School administrators elsewhere generally have a university degree or a community college diploma in institutional management. Entry to these occupations usually requires several years of teaching-related experience. For department heads and faculty administrators, a doctorate degree in the field of specialization is required. Vocational training administrators usually require training in the area of instruction or a post-secondary qualification in business administration.

Nature of Supply

Most people enter teaching administration from the ranks of teachers. Although this occupation is dominated by men, the share of women increased to 29% in 1986 from 24% in 1981. Due to the education and experience requirements, most individuals do not enter this occupation until the ages of 35 to 39 years. Retirements may begin between the ages of 50 and 54, implying typical career spans of 10 to 20 years.

Market Conditions and Job Prospects

Over the 1981-to-1984 period, employment grew faster than the average for all occupations. During the second half of the 1980s, employment growth was average, a rate it is expected to maintain between 1989 and 1995. It is anticipated that about 18,000 job openings will arise over this period, about 80% of which will be to replace people who have left this occupation due to death, retirement or other causes.

Since much of the educational system is funded totally or partially by the various levels of government, employment in this occupation is much more sensitive to government policy than to general economic conditions.

Factors which will affect employment in this field include fiscal restraint by governments, changes in student-teacher ratios and increasing pressure in some provinces to provide kindergartens for four-year olds. Unemployment is extremely low for this group, but competition for administrative positions remains intense among aspiring secondary and elementary school teachers.

1985 Annual Earnings	$	
Lowest 10% of Workers	25,689	or less
Average Worker	45,087	
Highest 10% of Workers	60,645	or more

Source: 1986 Census

For further information, contact:

Canadian Teachers' Federation
110 Argyle Avenue
Ottawa, Ontario K2P 1B4
(613) 232-1505

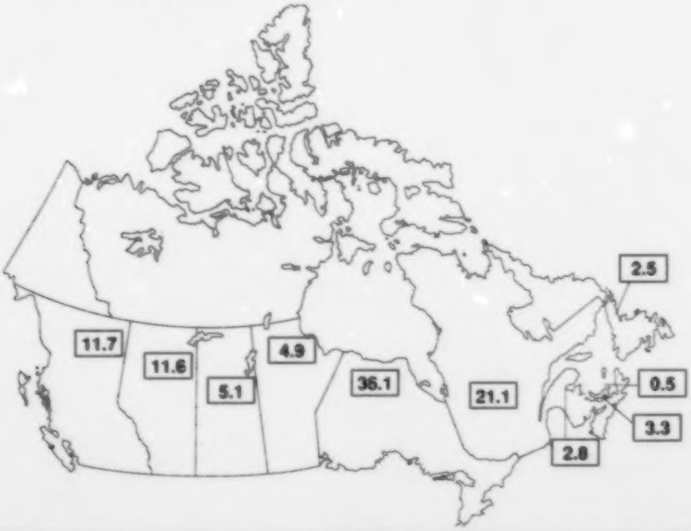
Canadian Association of
University Business Officers
151 Slater Street
Ottawa, Ontario K1P 5N1
(613) 563-1236

Administrators in Medicine and Health

1134

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	20,176	7.6	4.4	14,107
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	48	52	2	80	18	94	6
	1986	40	60	2	82	16	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (90)
- Hospitals (52)
- Health and Welfare - Non-Hospital (34)
- Education (2)

Public Administration (7)
- Provincial (4)
- Federal (1)
- Municipal (1)

Manufacturing (1)

Administrators in Medicine and Health

1134

Job Environment

Health services administrators are responsible for setting policies and managing the health care system. They include hospital administrators, chief dieticians, and directors of occupational health, public health, therapeutic services, volunteer services and admitting departments. The hospital administrators group can be further broken down into chief executive officers, directors of nursing, medical officers of health, non-medical administrators and directors of public health nursing. Health services administrators work primarily in hospitals and similar institutions, such as clinics, extended care facilities and public health agencies; a minor share work in public administration and education.

Educational Background and Skills

People in this field must show leadership, a desire to serve others, an ability to relate to other health professionals, and the capacity to work under pressure.

While in the past it was possible to enter this field directly from such professions as nursing, medicine or dietetics, entry into most administrative jobs in the health care sector now requires formal post-secondary instruction in administration. Courses in hospital management, offered by the Canadian Hospital Association, are open to individuals with relevant work experience. Professional certification from the Canadian College of Health Service Executives is recommended for those seeking career advancement.

Nature of Supply

Sixty percent of health and medicine administrators in 1986 were female, a significant increase over the proportion of five years earlier. The average age of all administrators was 43, with very few people under 25 and a relatively high proportion over 55. This age structure reflects the fact that this occupation attracts people at a higher level of their careers; most people enter this labour force between the ages of 30 and 39 and begin to retire after 60, implying a career length of at least 20 years.

In 1986, approximately 7% of Canada's employed medicine and health administrators worked part-time. This was much below the all-occupation average.

Market Conditions and Job Prospects

Employment in this occupation is expected to increase somewhat more slowly between 1989 and 1995 than it did in the 1970s, although it will grow significantly more quickly than the average for all occupations. During this period, an additional 14,000 jobs will become available, of which approximately 42% will be new positions. The job outlook in this field is positive, a consequence of today's low occupational unemployment rate and the projected above-average rate of job growth. These occupations are generally not affected by economic conditions but are somewhat sensitive to government expenditures.

Increasing pressures on our health care system will require administrators to manage their resources more effectively; in this they will be aided by such technological innovations as centralized financial and computer information systems.

A shift towards chronic care facilities, such as nursing homes, and the provision of new services, such as day surgery, home care and day care, may increase the demand for personnel in this field. Further employment opportunities may arise with contracting firms in response to a current trend of hiring health care entrepreneurs and contract managers at some hospitals.

Earnings

Income for health and medicine administrators can vary considerably depending on the type and size of their employer, their province of employment, their years of experience and their area of practice. In 1988, hospital administrators in Saskatchewan earned between $29,184 and $66,526 per annum. The average salary was $43,476 (*Wages and Working Conditions by Occupation, 1988*, Saskatchewan Human Resources, Labour and Employment).

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**21,320**	**or less**
Average Worker	**38,885**	
Highest 10% of Workers	**57,710**	**or more**

Source: 1986 Census

For further information, contact:

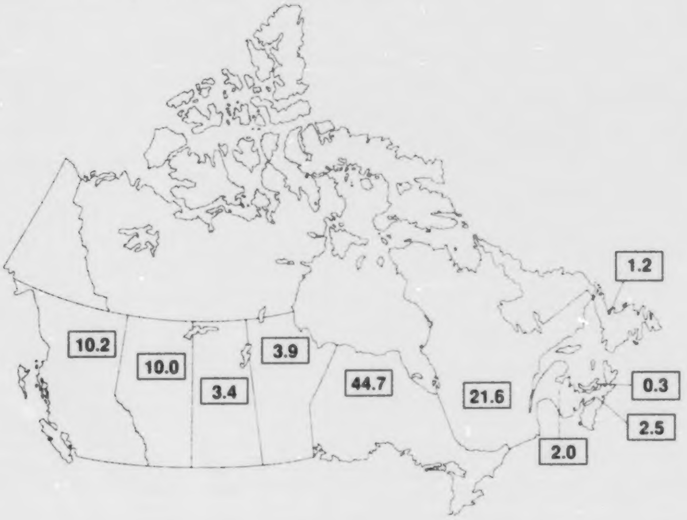
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Canadian Dietetic Association
Suite 601, 480 University Avenue
Toronto, Ontario M5G 1V2
(416) 596-0857

Financial Management Occupations 1135

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	79,550	3.9	2.5	42,797
All Occupations	12,434,282	1.5	1.5	8,081,2[illegible]

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	77	23	6	85	9	97	3
	1986	68	32	3	88	9	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Finance & Insurance & Real Estate (65)

Manufacturing (9)
- Food & Beverages (1)

Services (9)
- Business (4)
- Education (1)

Financial Management Occupations

1135

Job Environment

This occupational category includes bank directors, branch managers, loan managers, controllers and vice-presidents of finance. Today's bankers are experts in management, marketing, industry and financial analysis. They oversee the operation of a financial institution or of a department responsible for administering chequing and savings account services, loans, trust services and portfolio management. They may also provide financial advice to individuals and corporate customers. Senior managers such as directors and vice-presidents establish objectives, co-ordinate the work of regions or departments and formulate policies. In the complex world of finance, these managers must act quickly and decisively, sometimes under a great amount of pressure.

Educational Background and Skills

As in most other managerial occupations, these positions are not attained directly from the educational system but through internal promotion. Most financial managers complete a university degree, diploma or certificate or community college diploma or certificate in business administration, commerce, economics or a related discipline. Many also take a one- to four-year special program given by the Canadian Bankers Association or the Canadian Credit Institute. A large number of financial management positions are occupied by professional accountants. Extensive general banking experience is necessary before becoming a bank or credit manager. Senior managers usually require over 10 years of experience in a subordinate management position. Managers of financial departments in industrial or commercial organizations must be experts not only in financial management, but also in the operations and finance requirements of their industries and firms.

Nature of Supply

Most university graduates entering these occupations have an undergraduate degree in commerce, specialized administration or economics. Community college graduates come mainly from the fields of management and administration, and financial management. Fewer labour force reentrants and immigrants are entering these occupations than in the past.

Although most financial managers are men, the number of women rose from 23% in 1981 to 32% in 1986. The average age (40) has increased somewhat since 1981. The majority of financial managers enter the field between the ages of 30 and 34 and leave before age 60, for an average career of 25-to-30 years.

Market Conditions and Job Prospects

Over the past eight years, employment grew much faster for financial managers than the average. The number of financial managers rose rapidly (3% per year) over the 1981-to-1984 period, while the number of Canadians with jobs was declining.

The strong showing of financial managers may be due in part to their large concentration in the finance, insurance and real estate sectors: the demand for their expertise increases during economic downturns, since the services they provide are crucial in sustaining financial institutions when the economy is weak. Current labour market conditions appear to be favourable, as the number of unemployed financial managers continues its decline of the past seven years. In addition, as the number of job vacancies continue to decrease, there may be some tightening in this occupational area.

Employment growth over the projection period is expected to be moderate, although slightly above the average of all occupations. The increased demand for financial managers will come from the demand for financial services by both the household and business services. Deregulation of the financial sector and the consequent increase in the number of institutions licensed to provide monetary transactions, as well as the expansion of corporate financial and auditing controls, will play an important role in job growth. As the size of the working population increases (and with it the number of holders of basic accounts and credit cards), more financial managers will be required to serve it. Prospects are particularly good for credit managers and candidates with specializations in commerce and computer science. Approximately 43,000 new job openings are expected, with replacement needs accounting for about 75% of these positions. Due to the occupation's large size and the current age structure, the need to replace workers who retire, die or leave for other reasons will be strong.

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**20,921**	**or less**
Average Worker	**39,753**	
Highest 10% of Workers	**60,569**	**or more**

Source: 1986 Census

For further information, contact:

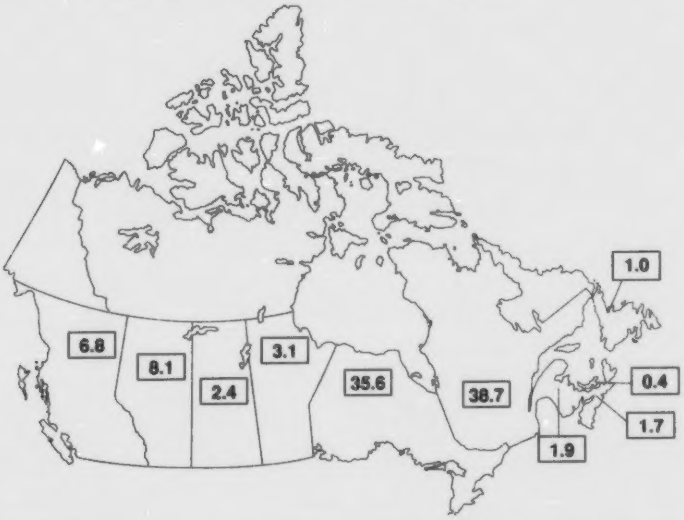
Certified General Accountant's
Association of Canada
1176 West Georgia Street, Suite 740
Vancouver, B.C. V6E 4A2

The Society of Management
Accountants of Canada
154 Main Street East, Box 176, M.P.O.
Hamilton, Ontario L8N 3C3
(416) 525-4100

Personnel and Industrial Relations Management Occupations 1136

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	34,837	3.8	3.4	21,388
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	73	27	7	82	12	96	4
	1986	65	35	6	85	10	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (27)	**Public Administration** (22)	**Manufacturing** (19)
- Business (6)	- Federal (9)	- Food & Beverages (2)
- Recreation (4)	- Provincial (7)	- Electrical Products (2)
- Education (4)	- Municipal (6)	- Chemicals & Chemical Products (2)

Personnel and Industrial Relations Management Occupations

1136

Job Environment

The senior managers in this category include employee relations managers, personnel department managers, industrial relations directors and recreation directors. Personnel managers are responsible for the effective use of human resources within an organization. This involves setting personnel policy, determining hiring criteria and directing the selection, training and evaluation of employees. Other activities include the administration of employee benefit plans, the development of wage and salary schedules, and participation in the collective bargaining process.

With the growing recognition of the importance of effective human resource management, personnel managers have increasingly adopted practices that deal with training and career development, employee morale, motivation, human rights and recreation. Another recent development has been their attention to more carefully planned staff reductions. Early retirements, sabbaticals, work-sharing agreements, employee retraining and redeployment are among the measures personnel managers consider for incorporation into their organizations' policies. In such cases, they must strike a balance between compassionate treatment of employees and attainment of organizational goals.

Educational Background and Skills

These are generally not entry-level occupations, since they are usually attained only with a combination of formal education, in-house training and many years of related experience. There are no specific qualifications required for personnel administrators, although sociology and business administration are often helpful.

Most personnel administrators have an undergraduate university degree in economics, business or specialized administration. Knowledge of electronic data storage and processing systems is becoming more important with increasing computerization in this area.

Nature of Supply

Considerable experience is needed before moving into this occupation, and thus the greatest source of supply is from related occupations. This is reflected by the fact that most individuals enter these occupations between the ages of 30 and 34 and begin to leave about 30 years later. Men dominate these occupations, but the share of women is increasing very rapidly. The majority of personnel and industrial relations managers are located in Quebec (39%) and Ontario (36%), and the average age is 39.

Market Conditions and Job Prospects

Employment in this occupational group, as in most management categories, is relatively stable. Over the 1984-to-1988 period, employment increased at a faster-than-average rate and is expected to continue to do so during the forecast period, although at a slightly slower rate. The strong demand for personnel managers partially reflects the increasing need for production rationalization, retraining and redeployment of staff, along with increased compensation packages such as company pension plans, various types of insurance and changing leave requirements.

It is anticipated that 13,600 people will be required to replace those leaving these occupations as a result of retirements, returns to school, death and emigration. A further 7,700 job openings will result from increased market activity.

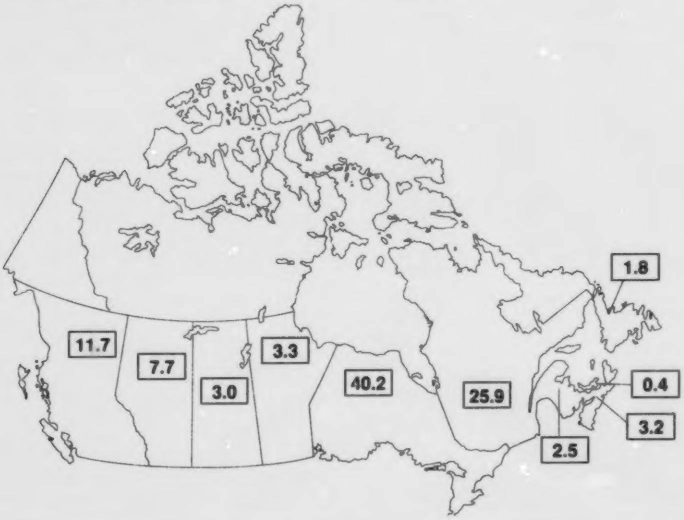
1985 Annual Earnings	$	
Lowest 10% of Workers	19,708	or less
Average Worker	37,528	
Highest 10% of Workers	57,251	or more

Source: 1986 Census

Sales and Advertising Management Occupations 1137

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	254,464	4.6	3.9	166,952
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	80	20	8	80	12	96	4
	1986	73	27	10	79	11	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (70)
- Retail (55)
- Wholesale (15)

Manufacturing (14)
- Food & Beverages (2)
- Printing & Publishing (2)
- Chemicals & Chemical Products (1)

Services (9)
- Business (3)
- Accommodation & Food (2)
- Miscellaneous (2)

Sales and Advertising Management Occupations

1137

Job Environment

This category includes managers in advertising, marketing, and department and retail stores.

Advertising managers are responsible for projecting their company's image in the marketplace and for selling their products or services through advertising. Working closely with production, design, financial and marketing people, technical experts and top managers, they plan and execute effective advertising campaigns.

Retail store managers and retail department managers are responsible for the day-to-day operations of their store or department and are concerned with sales more than with advertising and promotion.

Educational Background and Skills

As with most managerial positions, jobs in advertising and sales management are generally not entry-level occupations, and require individuals to have some blend of formal training and experience. Qualifications vary enormously according to the industry and company involved. For instance, a university degree or certificate in the relevant field is essential for a career in technical sales. Sometimes, as in real estate and financial securities, licensing is compulsory. Advertising managers must be generalists who, after discussion with various experts, can make the decisions and judgments required to fulfill the advertising needs of their company.

Nature of Supply

Many enter these occupations with an undergraduate degree in commerce, economics or specialized administration, or with a community college diploma or certificate in business and commerce, marketing or retail sales; others have completed a trade/vocational program in management and administration or graphic design. Immigration plays a minor role in supplying individuals for this field.

Although the majority of individuals in these occupations are men, the situation has recently been changing; women accounted for 27% of employment in this group in 1986, compared with 20% in 1981. The average age (39) in this field remains unchanged from 1981. Most sales and advertising managers enter the occupation between the ages of 30 and 34 and leave between 65 and 69, for an average career span of 35 years.

Market Conditions and Job Prospects

Over the past eight years, employment grew faster than the average of all occupations, as these professionals saw their numbers increase while the total number of Canadians with jobs declined. The main reason for this robust growth is that these occupations are concentrated in the retail and wholesale trade sectors which benefited from strong economic expansion beginning in 1983.

Over the 1984-to-1989 period, the increased economic activity facilitated an employment growth of about 5%. Again, the wholesale and retail trade sectors were the main engines of growth, with both domestic demand and exports rising. Current labour market conditions appear to be fairly stable as evident from the relatively small number of unemployed managers in 1988 and the general decline in unemployment over the past seven years. The number of hard-to-fill job vacancies has also fallen since 1984 indicating that job search strategy may intensify.

A considerable proportion (70%) of managerial jobs in sales are in retail and wholesale trade, with smaller concentrations in the manufacturing and services sectors. Employment in these sectors is fairly stable throughout the year.

As the trade industry becomes increasingly automated (computerized inventory control, sales records, electronically processed orders), the knowledge required by sales and advertising managers has expanded. However, this has as yet had little effect on employment in this group.

The employment outlook for this occupational group calls for above average growth into the mid-1990s, based on the outlook for the trade, manufacturing and service sectors. Over the projected period, about 167,000 jobs will be created, with the majority (60%) resulting from those leaving the occupation due to death, retirement or other reasons.

Earnings

Canada
- 1986 Annual Salaries -

	High	Low	Average
Advertising and Sales Promotion Managers	$66,000	$23,600	$39,400
Sales or Branch Managers			48,000*
District Sales Managers			58,900*

*includes commissions and bonus pay

Source: Sales and Marketing Report, Thorne, Stevenson and Kellogg.

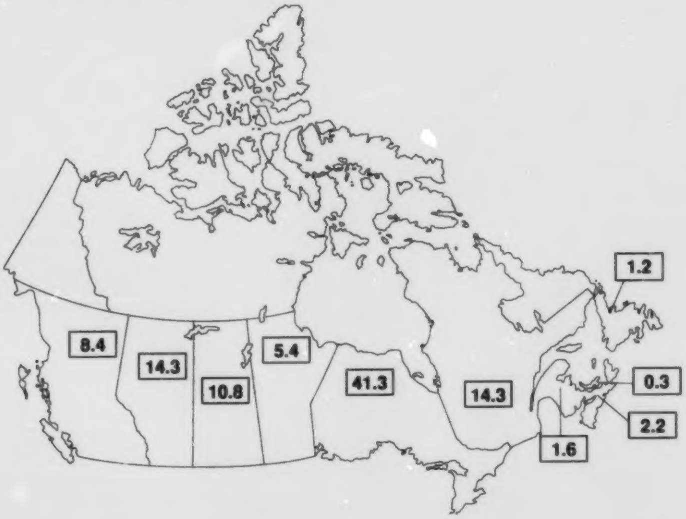
1985 Annual Earnings	$	
Lowest 10% of Workers	12,488	or less
Average Worker	31,758	
Highest 10% of Workers	54,169	or more

Source: 1986 Census

Purchasing Management Occupations 1141

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	15,592	2.2	3.1	9,105
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	86	14	11	71	18	98	2
	1986	83	17	7	80	13	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (31)
- Food & Beverages (4)
- Machinery (4)
- Metal Fabricating (3)

Trade (31)
- Wholesale (24)
- Retail (7)

Transport & Communications & Utilities (12)
- Storage (8)
- Electric Power (1)

Purchasing Management Occupations

1141

Job Environment

Purchasing officers and managers are specialists in locating sources of supply and in buying goods, materials or services. They deal with a range of people, including suppliers, chartered accountants, engineers and factory supervisors. Purchasing officers and managers develop and interpret technical specifications for goods or materials, study technical documents and advertising materials, interview suppliers and invite tenders. They also determine whether sales tax is applicable and, in the case of imported goods, what duty and customs documents are required. Other areas of concern include the cost of commodities and services, types of transportation, sources of supply, scheduling and insurance coverage.

Educational Background and Skills

Purchasing managers seldom enter directly from the education system. Generally those entering these occupations have a university education plus practical experience which may include summer experience as a clerical worker in a purchasing department. For large firms or highly technical processes, purchasing officers and managers must have extensive technical expertise. The Purchasing Management Association of Canada offers a formal educational program which leads to a Professional Purchasers diploma.

Nature of Supply

Besides those moving up the career ladder (clerk to assistant buyer to buyer to manager), the majority of entrants to the occupation have an undergraduate degree or a community college diploma or certificate in business and commerce, industrial engineering or financial management. Over the projection period, it is estimated that almost 1,000 students will enter this occupation from the formal education system. Individuals re-entering the labour force who are willing to undertake the necessary in-house training are another significant source of supply.

Although historically this occupation has been dominated by males, some redress in the situation occurred over the 1981-to-1986 period. Most officers and managers enter the occupation between the ages of 25 and 29 and begin leaving between 65 and 69 years of age, for an average career span of 40 years. The average age in 1981 and 1986 was 40 years.

Market Conditions and Job Prospects

Mirroring the economic conditions of the early 1980s, the number of purchasing officers and managers declined slightly.

Over the 1984-to-1988 period, with continuous economic expansion, job openings increased much faster than during the previous period, and were higher than the all-occupation average. Improvements were due to a concentration in the wholesale and retail trade, an area which benefitted from increased activity in the manufacturing sector. Current unemployment rates for purchasing officers and managers are much lower than average, the number of hard-to-fill job vacancies is about average, indicating that current labour markets may be tightening and competition for jobs may intensify.

These occupations appear to be slightly sensitive to economic conditions. Technological change is having a positive affect on this group as the demand for sophisticated information increases, because as computer technology simplifies administrative tasks like inventory control and record-keeping, more emphasis will be placed on negotiating skills and the supplier-performance aspects of purchasing. Opportunities should be enhanced for those with computer training, university degrees, a Professional Purchaser designation and strong inter-personal skills.

Into the 1990s, the outlook calls for above-average growth following the patterns in the wholesale and retail trade and the manufacturing sectors. Job openings will result mainly from attrition, as approximately 6,000 purchasing officers and managers will be required to replace those who retire or leave the occupation. Increased market activity, in turn, will generate an additional 3,000 positions over the projection period.

Earnings

A recent survey conducted by Maclean Hunter's Research Bureau for *Modern Purchasing* magazine and the Purchasing Management Association of Canada reveals that purchasing managers earned an average of $35,300 in 1986. Salary differences between the sexes declined from 42% in 1983 to 31% in 1986. (Men earned an average of $36,650; women earned an average of $26,930.)

1985 Annual Earnings	$	
Lowest 10% of Workers	18,298	or less
Average Worker	32,716	
Highest 10% of Workers	48,280	or more

Source: 1986 Census

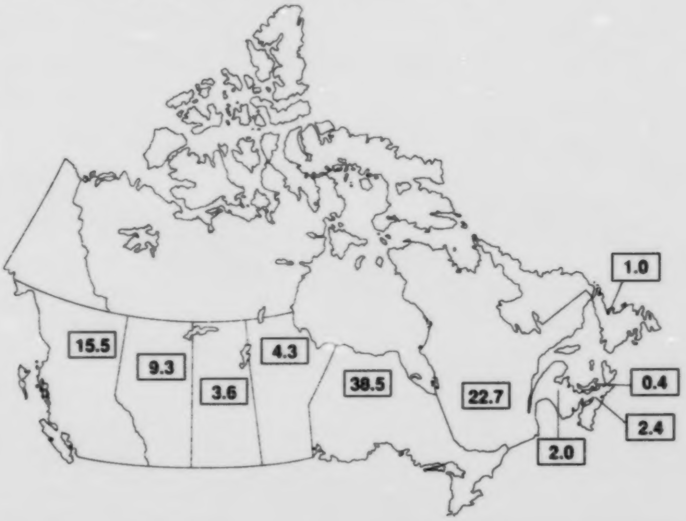
For further information, contact:

Purchasing Management Association of Canada
Suite 1414
2 Carlton Street
Toronto, Ontario M5B 1J3
(416) 997-7111

Hospitality and Other Services Management Occupations 1142

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	70,510	5.2	3.8	45,385
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	70	30	7	78	15	92	8
	1986	65	35	16	73	11	91	9
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (92)
- Accommodation & Food (79)
- Miscellaneous (5)
- Business (3)

Trade (3)
- Retail (2)

Finance & Insurance & Real Estate (2)

Hospitality and Other Services Management Occupations 1142

Job Environment

This occupational group includes club and lodge directors, restaurant managers, hotel and motel operators and managers of private protective services. Within the hospitality sector managerial duties are similar, although they vary in complexity according to the size of the establishment. Managers in this sector set policy, establish marketing concepts, plan advertising and promotional activities, organize and supervise staff, and control costs and expenditures. Those in large hotels supervise, directly or indirectly, between 30 and 35 trades and up to 12 professions. They must work with other managers in charge of sales, rooms, and food and beverages.

Educational Background and Skills

As with most managerial occupations, these positions are achieved only after many years of working experience in the field. In general, secondary school graduation is required and community college or university education is recommended. Both self-employed managers and those working for others must be familiar with accounting, budgeting, planning, cost control and finance, all of which may be learned through in-house training within the hotel industry. Successful managers in these occupations must have a genuine liking for people and have an intimate knowledge of the workings of their organization.

Nature of Supply

Of those who have recently entered this occupation with post-secondary qualifications, most have received education in business, hotel management, service industry technologies (such as food service management) or cooking. Although men still dominate this occupation, an increasing number of managerial positions are being filled by women: 35% in 1986 compared to 30% in 1981. The share of young people in this occupation has increased from 7% in 1981 to 16% in 1986, compared to 20% for all occupations.

Market Conditions and Job Prospects

Canada's increasing attractiveness as a tourist destination, as well as the rapid growth of the two-income family, has led to considerable growth in the hospitality industry. Over the 1980s, the total employment for this group grew much faster than for all occupations.

This growth will likely slow down during the 1989-to-1995 period, yet it will still be significantly faster than the average for all occupations. About 45,000 job openings are expected between 1989 and 1995, with just over half created by workers who leave this field due to death, retirement or other reasons.

Small business computers and electronic cash registers are used by many establishments in the hospitality industry, while larger computerized systems are used by big hotel chains to keep sales and accounting records. Related applications, such as stock control, kitchen production, reservations, room allocation, room service and billing are also computerized. Although these developments will likely affect managerial work by eliminating routine tasks, the overall impact of such new technology will be minimal.

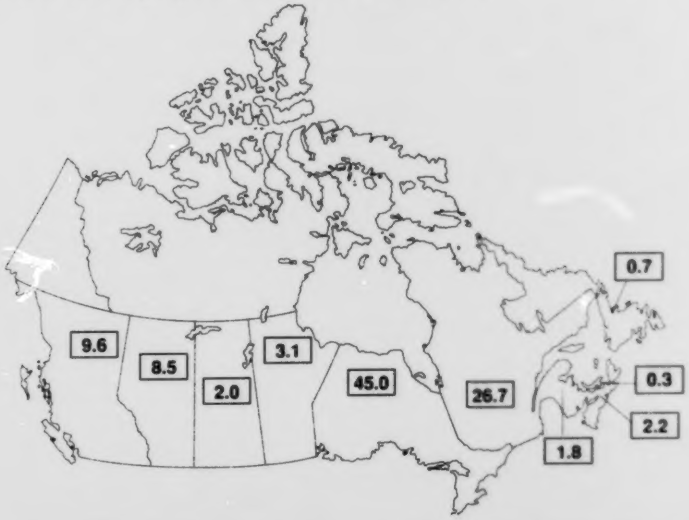
1985 Annual Earnings	$	
Lowest 10% of Workers	8,929	or less
Average Worker	23,006	
Highest 10% of Workers	40,550	or more

Source: 1986 Census

Production Management Occupations 1143

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	55,939	1.6	2.0	27,836
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	93	7	5	81	14	98	2
	1986	89	11	5	82	13	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (70)
- Food & Beverages (9)
- Metal Fabricating (6)
- Chemicals & Chemical Products (5)

Trade (9)
- Wholesale (6)
- Retail (2)

Services (7)
- Business (4)
- Miscellaneous (1)

Production Management Occupations

1143

Job Environment

This category includes factory superintendents, operation managers, refinery superintendents and production managers. They formulate production programs for their firms by assessing production requirements, plant capacity, financial limitations and the availability of labour and supplies. They monitor the flow of materials and products and ensure that production schedules are maintained. When actual or potential difficulties are identified, they recommend action to remedy or prevent production delays. Production managers also develop time and cost estimates, draw up tooling or other schedules and develop procedures for assessing the efficiency of machines used in manufacturing. They often work closely with engineering and design departments to improve product quality and reliability.

Educational Background and Skills

Production management positions are generally attained only after a combination of formal education, in-house training and experience. At present, there are no specific requirements, although post-secondary training in business administration, industrial organization, or a specialized area is recommended.

Nature of Supply

Most people entering this occupational group have many years of experience as well as a post-secondary education. Most managers with a university degree have specialized in business, administration or engineering. It is not unusual for people in this group to have a graduate degree, although it is also possible to enter this group with a community college diploma in management or finance.

The requirements of many years of experience and a post-secondary education have resulted in very few young people working in this occupation. Only 5% of those employed are less than 25 years old, compared to 20% for all other occupations. The share of women in this field increased from 7% to 11% over the 1981- to-1986 period, but this is considerably lower than the 43% for all occupations.

Market Conditions and Job Prospects

This occupational group is more sensitive to changes in economic conditions than most other managerial positions, as the need for production managers is directly related to the level of production. However, employment is expected to grow slightly faster than average between 1989 and 1995, an improvement over the previous decade, when employment growth was average.

Technological advances, such as computer-aided design and computer-aided manufacturing, will increase productivity and lead to a relative reduction in the number of workers in industry. Nevertheless, the demand for production managers is expected to grow since the need to continuously adjust production processes will increase the need for planning.

Earnings

The Sobeco Group has provided the following 1986 salary information for various types of production managers:

Title	Average Salary	Earning Range
Production Superintendent	$42,181	$32,000 - $56,000
Distribution Manager	44,755	35,160 - 53,420
Materials Manager	42,380	30,690 - 55,490
Production Control Manager	40,580	31,530 - 49,790

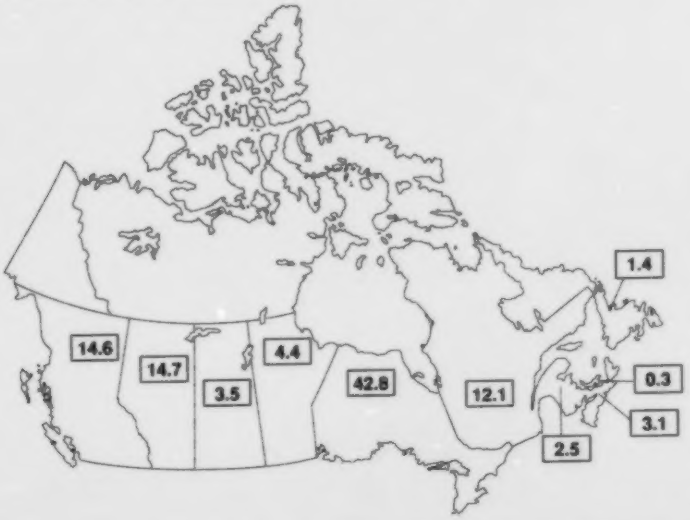
1985 Annual Earnings	$	
Lowest 10% of Workers	20,286	or less
Average Worker	38,846	
Highest 10% of Workers	60,292	or more

Source: 1986 Census

Management Occupations, Construction Operations 1145

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	24,266	-0.5	1.7	11,626
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	3	82	15	97	3
	1986	96	4	3	79	18	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (73)

Services (7)
- Business (6)

Transport & Communications & Utilities (5)
- Rail (1)
- Miscellaneous (1)

Management Occupations, Construction Operations

1145

Job Environment

This classification includes development managers, project managers, construction managers, construction superintendents and road commissioners. Development, project and construction managers are part of middle management in the construction industry.

A development manager is usually employed by a property owner to recommend the type of development for a property — for example, residence, hotel or shopping centre — and may be involved in the design, construction, leasing or management of the project. A project manager is typically recruited by an owner to plan and build a structure after the purpose of the project has been clearly identified. The project manager's role is to ensure that operations are co-ordinated so that the project is completed on time. Construction managers co-ordinate, supervise, inspect and direct trade contractors with whom a builder or general contractor has contracted to construct a project. Additional duties may include providing advice on plans, specifications and costs; conducting cost control; arranging schedules; and organizing the project during the design stages.

Educational Background and Skills

Construction firms generally seek middle managers with effective administrative abilities who can work well with office and trades personnel. Although technical/trade school education is helpful, employers place greater emphasis on management skills, a knowledge of engineering and experience in construction.

Many individuals who enter the occupation have an undergraduate degree in business administration or civil engineering, or a community college diploma or certificate in engineering, construction technologies or architectural design/drafting technologies. A trades background with supervisory or management experience is common among construction managers.

Technological improvements may change the skill requirements in this occupation. Innovations such as cost-tracking programs allow construction managers to monitor and manage projects in several locations, while computerized data on inventory control, material requirements planning, work in progress and cost accounting give managers more control and assist decision making.

Nature of Supply

In 1986, 96% of construction managers were male, although the number of women entering the occupation is growing.

The age distribution of the workforce in this occupation is older than the all-occupation norm. This results from the fact that previous experience is usually necessary prior to becoming a manager, and entry to this occupation as late as the mid-30s is not uncommon. Practical experience in or around the construction industry is usually the best way of learning the unique organization of work in that industry.

Immigration has been a minor source of trained construction-related managers in recent years, but since this occupation is usually entered after gaining prior experience in other construction occupations, domestic sources of skilled personnel are of greatest importance.

Market Conditions and Job Prospects

Employment of construction managers is almost entirely created by construction activity. Most of these managers are employed directly by construction firms, but some are employed on a consulting basis or by utilities which normally are engaged in ongoing construction activity. Employment growth over the 1989-to-1995 period will be above the all-occupational average due to continued investment in new and modernized manufacturing capacity in Central Canada and an expected upturn in construction of resource extraction facilities by the mid-1990s. Additional job openings will result from retirements and career changes.

The volume of construction work in the economy is volatile and thus some variation in the level of employment of construction managers can occur. Seasonal variation in employment levels is also significant.

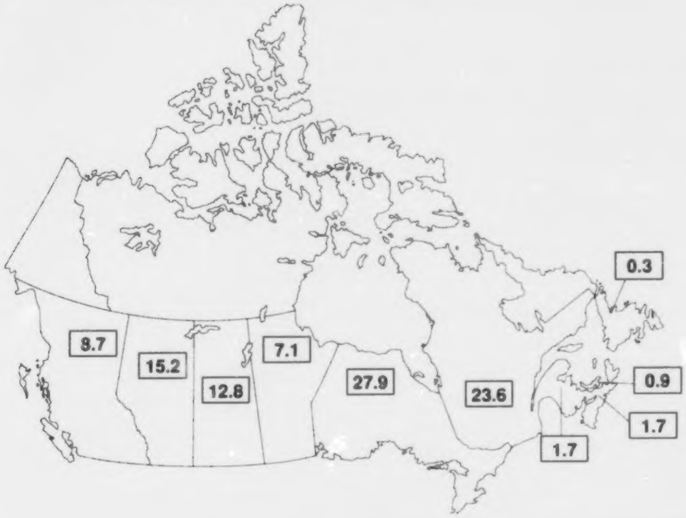
1985 Annual Earnings	$	
Lowest 10% of Workers	18,842	or less
Average Worker	40,720	
Highest 10% of Workers	61,060	or more

Source: 1986 Census

Farm Management Occupations 1146

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	39,767	1.2	0.4	15,190
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	85	15	19	61	20	85	15
	1986	82	18	13	64	23	84	16
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Agriculture (100)

Farm Management Occupations

1146

Job Environment

Generally, the larger the farm, the more important and complex is the farm manager's position. In large organizations, managers may supervise up to 100 full-time farm workers, as well as co-ordinate production, marketing, purchasing and credit activities. On smaller farms, managers perform more physical tasks than on larger ones. Considerable uncertainty surrounding weather conditions and agricultural prices requires farm managers to exercise caution and foresight in planning. The stability of a farm's income is inseparably linked to decisions about when to seed, fertilize, cultivate and harvest, when to store crops, when to slaughter livestock and what crop combinations will ensure steady revenue.

Educational Background and Skills

Besides physical stamina, farm managers must have good business sense in order to handle financial transactions, including marketing, purchasing and credit activities. They must have a thorough knowledge of farm machines and must keep abreast of agricultural improvements and new techniques in crop growing, fertilizers and chemical treatments.

In managing a small farm, a farming background or several years of farm experience is essential. Farm managers must also try new processes and obtain technical knowledge concerning crops, growing conditions and plant and animal diseases.

Although no specific qualifications exist for entry into this occupation, a community college or university degree in agriculture with business administration is an asset, since managing a large farm is similar to managing a large company.

Nature of Supply

Most individuals entering this occupation from the education system have an undergraduate qualification in agricultural science and/or agricultural economics. Community colleges and trade/vocational schools also supply graduates to this occupation. Generally, the manager's position on larger farms is not at the entry level and requires many years of farming experience.

Males still dominate this occupation, but more females are becoming farm managers. The majority of farm managers are located in Ontario (28%), Quebec (24%) and Alberta (15%). The average age of the occupation declined from 46 in 1981 to 41 in 1986. The majority of individuals enter this occupation during their 20s and many stay on past the normal retirement age. This accounts for the relatively high average age and that there is a greater share of workers over 55 years of age than for all occupations on average.

Market Conditions and Job Prospects

Through much of the 1970s, employment in this group grew slightly faster than average as the continuing rationalization of the agricultural sector increased the demand for professional managers. Employment in this group declined during the early 1980s, but this decline was less than that recorded for total employment. Job growth for this occupation is expected to be slower than average, but faster than for other farm-related occupations, which show steady or declining employment levels.

Technological advances (sometimes known as "agrimation"), such as computerized systems to regulate feeding, planting and harvesting, may change farm structures. Increased mechanization could extend to the use of robotics for harvesting field and orchard crops. Although these developments will increase productivity, they will also reduce farm employment and limit opportunities for farm managers.

The outlook is brightest for managers with a wide range of scientific, business and personnel management skills, but opportunities are limited to the larger farms. Of the 15,000 jobs expected to open up during the forecast period, almost all will be replacement positions.

1985 Annual Earnings	$	
Lowest 10% of Workers	5,342	or less
Average Worker	17,933	
Highest 10% of Workers	32,176	or more

Source: 1986 Census

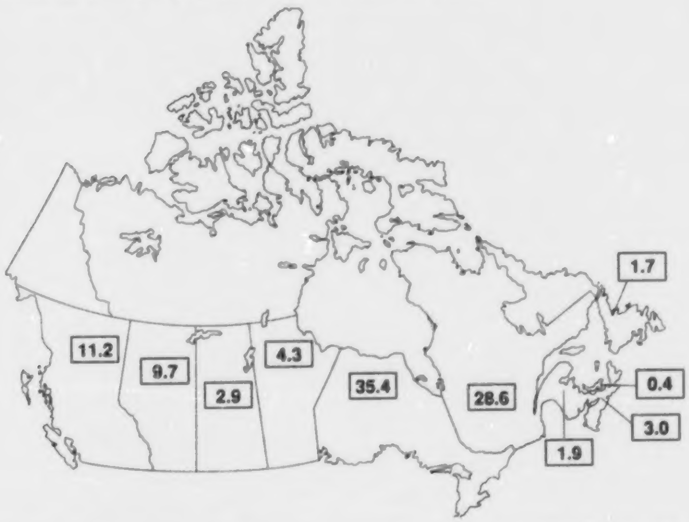
For further information, contact:

Agriculture Canada
Sir John Carling Building
Room 361, 930 Carling Avenue
Ottawa, Ontario K1A 0C5
(613) 995-5880

Management Occupations, Transport and Communications Operations 1147

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	17,921	1.0	1.8	8,626
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	87	13	3	82	15	99	1
	1986	83	17	3	84	13	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (74)
- Telephone & Telegraph (22)
- Miscellaneous Transport (18)
- Air Transport (12)

Manufacturing (7)
- Electrical Products (2)

Services (6)
- Business (3)

Management Occupations, Transport and Communications Operations 1147

Job Environment

Airline managers, traffic managers, flight directors and port engineers are examples of jobs in this classification. Managers in the transportation industry oversee workers providing air, rail, water and road transportation services. They must ensure that operations run smoothly, on schedule and in accordance with strict regulations, 24 hours a day.

Telecommunications carrier managers analyze and evaluate the operation of telecommunications systems, including telecommunications operation facilities, traffic volume and flow, and installation and maintenance services, and recommend improvements.

Educational Background and Skills

Transport management occupations are generally not entry-level, since they are usually attained only with a combination of formal education, in-house training and experience. The qualifications necessary vary according to the position, but in general candidates should be in good health, possess good interpersonal skills, a secondary school diploma, related career experience and should be willing to undergo in-house training, which sometimes lasts up to five years (e.g., for industrial traffic managers). Post-secondary education is a valuable asset and is required for some categories.

Transportation managers must be familiar with new technologies affecting their industry, such as large airline reservation systems, satellite-based train control systems or micro-computers for municipal and transit authorities. Similarly, communications managers must be familiar with new methods of computerized communication. They must also be sensitive to the changing demands of their customers.

Nature of Supply

Most people enter this occupation after a number of years of related experience. Many have a degree or diploma in a relevant area, as well as supplementary education in business administration. There is a low concentration of young people in this field, which is typical of non-entry-level positions. Males dominate this group, but the share of women increased from 13% in 1981 to 17% in 1986.

Market Conditions and Job Prospects

Employment in transportation is sensitive to changes in economic activity, and thus people entering this occupational group may experience some periods of unemployment. During the 1980s, employment opportunities grew more slowly than the average for all occupations as deregulation in many areas of transportation resulted in the rationalization of many businesses. Employment prospects over the 1989-to-1995 period should be brighter, however, and this occupational group should experience slightly faster-than-average growth. About 8,600 jobs will open up during this time, three-quarters of which will result from replacements for people who retire, die or leave the occupation for other reasons.

Technological change, such as the introduction of computerized operations and fibre optics, will require people in this occupational group to adapt to a changing environment.

Earnings

Salary Ranges for Airport Managers of International, National and Regional Airports:*

Site	Airport Classification	Salary Range of Airport Managers
Toronto	International	$54,300 - $63,800
Muskoka	Local commercial	27,536 - 31,021
London	Regional	38,957 - 43,931
Halifax	International	45,702 - 51,591

* Transport Canada, 1986

1985 Annual Earnings	$	
Lowest 10% of Workers	22,292	or less
Average Worker	40,750	
Highest 10% of Workers	57,297	or more

Source: 1986 Census

For further information, contact:

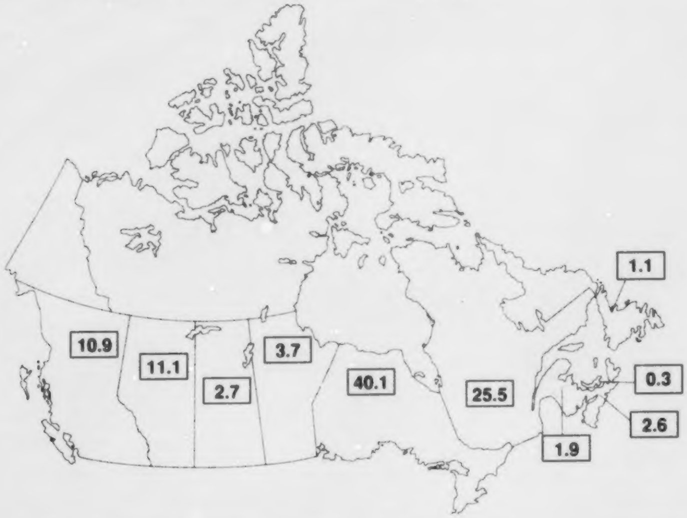
Canadian Trucking Association
Suite 300, 130 Albert Street
Ottawa, Ontario K1P 5G4
(613) 236-9426

Accountants, Auditors and Other Financial Officers

1171

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	203,904	4.1	1.9	104,817
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	69	31	5	85	10	94	6
	1986	60	40	4	86	10	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (31)
- Business (24)
- Education (2)
- Accommodation & Food (1)

Finance & Insurance & Real Estate (26)

Manufacturing (12)
- Food & Beverages (1)
- Metal Fabricating (1)

Accountants, Auditors and Other Financial Officers

1171

Job Environment

This occupational category includes accountants, auditors, underwriters, tax consultants, loan advisors and various other financial officers with an accounting background. The two most widely recognized accounting streams, financial accounting and management accounting, may be practiced publicly or privately by accountants having one of three professional designations. The duties and responsibilities of these three designations overlap, although areas of emphasis may differ.

Chartered accountant (CA) is the oldest and largest professional accounting designation. Activities of CAs can include auditing, financial advising and, subject to licensing requirements, acting as a trustee in conducting bankruptcy proceedings. About one-half of all CAs work as public accountants; their major activities are auditing and tax planning.

Certified general accountants (CGAs) usually act as financial advisors. They may conduct audits and sometimes act as trustees conducting bankruptcy proceedings or as business valuators. While most CGAs work for financial and other institutions, more than one-quarter are engaged in public practice.

Certified management accountants (CMAs) are most often directly employed by manufacturers, commercial enterprises and government. CMAs provide business advice and direction on strategic, tactical and operating decisions.

Virtually all accounting professions are affected by the growing use of computerized data processing and electronic data storage. The accounting professional of today must be familiar with computers and various accounting programs.

Educational Background and Skills

Entry requirements in this field vary according to the occupation, but generally applicants must have graduated from secondary school, and usually from a post-secondary institution (university degrees are mandatory in some instances, as in the case of CAs). Various occupations require candidates to attend in-house training programs, take further courses, obtain on-the-job training lasting from one to several years, pass a provincial or national examination and be licensed (compulsory for such occupations as auditing, securities counselling and bankruptcy).

Nature of Supply

Most accountants are either graduates of university programs in commerce, business administration, economics or mathematics, or community college graduates from such fields as business and commerce, accounting and financial management. Graduates from any discipline, however, may enter the occupation.

The representation of women increased from 31% in 1981 to 40% in 1986. Most individuals enter this occupation between the ages of 25 and 29 and begin to leave between 45 and 49 years of age (often for managerial positions), implying a relatively short career span of 20 years. The average age (38) is unchanged from 1981.

Market Conditions and Job Prospects

Employment in this group is insulated from changing economic conditions, and during economic slowdowns demand for accounting services actually increases. Over the past eight years, employment growth for accountants and auditors was faster than the average of all occupations. Their numbers increased by 3% during the first half of the 1980s.

Current labour market conditions appear to be fairly stable, as the number of unemployed accountants continues to decline. The strength of these occupations is due in part to their concentration in the finance, insurance and real estate and business services sectors, which recorded extremely robust employment gains during the post-recession period.

The outlook for this occupational group calls for slightly faster-than-average growth to 1995. About 105,000 job openings are expected, three-quarters of which will be replacement positions for those who retire, die or leave this occupation for other reasons.

1985 Annual Earnings	$	
Lowest 10% of Workers	17,533	or less
Average Worker	32,125	
Highest 10% of Workers	50,024	or more

Source: 1986 Census

For further information, contact:

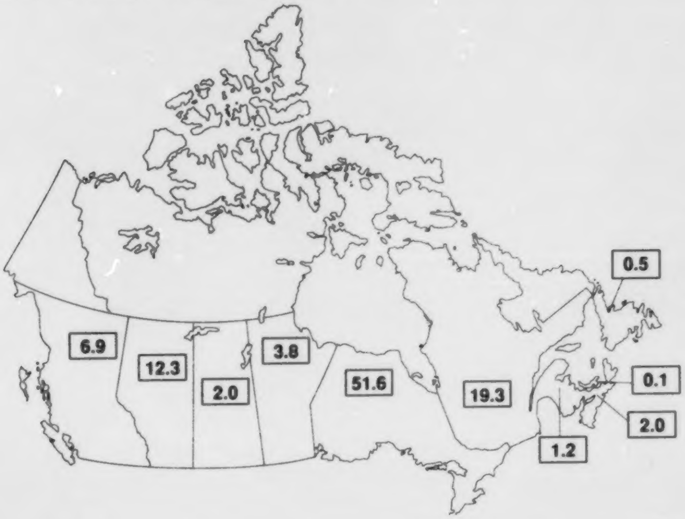
Certified General Accountant's
Association of Canada
1176 West Georgia Street, Suite 740
Vancouver, B.C. V6E 4A2

The Society of Management
Accountants of Canada
154 Main Street East, Box 176, M.P.O.
Hamilton, Ontario L8N 3C3
(416) 525-4100

Organization and Methods Analysts 1173

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	12,236	3.1	3.5	7,868
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	78	22	5	84	11	94	6
	1986	73	27	4	83	13	91	9
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (49)
- Business (43)
- Miscellaneous (2)
- Education (1)

Public Administration (22)
- Federal (14)
- Provincial (7)
- Municipal (1)

Manufacturing (9)
- Machinery (2)
- Electrical Products (1)

Organization and Methods Analysts

1173

Job Environment

People in this occupation group help businesses work more efficiently. This can range from improving the organization of forms to designing filing and record management systems for easier information retrieval. They also organize the structure of business or government organizations to improve their efficiency.

Organization and methods analysts must consult with managers and other staff and study flow charts, records and job descriptions to understand how a business operates. This allows them to identify problems and solve them by such methods as changing staff duties and redefining managerial boundaries and areas of responsibility. Work in this area can be stressful, as analysts often encounter resistance to change and a fear of job loss within the organizations they are studying.

Educational Background and Skills

The vast majority of people in this occupation have some post-secondary education coupled with lengthy business experience. New entrants require either a community college or undergraduate degree in business administration or related courses. Graduate degrees in business or related disciplines are also desirable.

In addition to formal education and experience, the ability to communicate effectively with people of all levels in an organization is essential. Analysts should also be presentable and ready to work under stress.

Nature of Supply

Since this occupation generally requires a university degree or college diploma and lengthy work experience, most people do not enter this field until their late 20s. Only about 4% of the people employed in this group are under 25 years of age, compared to 20% for all occupations. This profile remained relatively stable over the 1981-to-1986 period. Women's representation in this area increased from 22% to 27% over the period, suggesting that this occupation will be a growing source of employment for women at the professional level.

More than half of the people in this category work in Ontario, followed by Quebec and Alberta, and most employment is in the business services sector and in public administration.

Market Conditions and Job Prospects

Throughout the 1980s, employment growth in this occupation group was considerably faster than the average for all occupations. Employment within this field tends to be less stable than for other management occupations, although it remains better than the average for all occupations. The greater instability can be attributed in part to the fact that many of these positions are with consulting firms, which tend to do poorly during economic downturns. The 1989-to-1995 period is expected to continue the above-average growth in employment seen in the 1980s. About 7,900 positions should become available, approximately 60% of which will be replacement positions for those leaving the occupation.

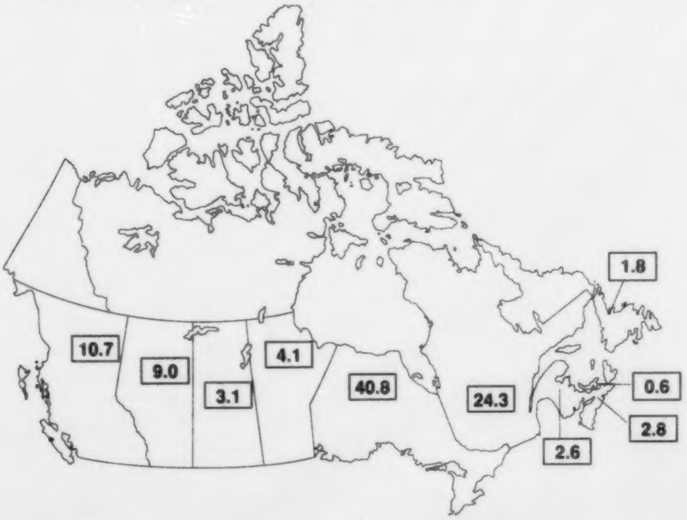
1985 Annual Earnings	$	
Lowest 10% of Workers	21,436	or less
Average Worker	40,623	
Highest 10% of Workers	60,485	or more

Source: 1986 Census

Personnel and Related Officers 1174

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	37,038	2.2	1.3	17,149
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	53	47	11	78	11	94	6
	1986	47	53	9	81	10	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (45)
- Federal (31)
- Provincial (12)
- Municipal (2)

Services (23)
- Business (10)
- Education (4)
- Hospital (3)

Manufacturing (11)
- Food & Beverages (1)
- Electrical Products (1)
- Chemicals & Chemical Products (1)

Personnel and Related Officers

1174

Job Environment

This category includes occupations such as personnel officers, employee relations specialists, industrial relations officers and employment counsellors. Primarily concerned with the effective use of human resources in an organization, personnel administrators determine staff requirements, analyze job specifications, prepare job descriptions, advertise vacancies, interview and test candidates, organize employee training and development programs, and help develop personnel policies. In the case of a collective agreement, personnel administrators are usually involved with contract negotiations and implementation of the agreement.

Educational Background and Skills

Although there are no specific qualifications for entry into this occupation, most candidates have a community college diploma or certificate, or a bachelor's degree; post-graduate degrees are also becoming more prevalent. Recommended fields of study are business administration, sociology, psychology or such specialized areas as labour negotiations. In addition to their formal training, most personnel administrators have completed in-house training programs or a program established by provincial personnel associations.

Nature of Supply

Female representation in this occupation increased from 47% in 1981 to 53% in 1986. The majority of personnel managers work in Ontario (41%) and Quebec (24%). Most people enter these occupations in their mid-twenties and begin to leave between 45 and 49 years of age, suggesting that this field may be a stepping stone for more senior managerial positions. The proportion of people in this group who are under 25 is lower than average, reflecting the need for formal training and experience, and the average age remains stable at 38.

Market Conditions and Job Prospects

Recent experience indicates that employment in this group is fairly insulated from changing economic conditions. The need to rationalize operations, redeploy employees and handle lay-offs and other adjustment programs, ensures steady employment even in adverse conditions.

More sophisticated and extensive human resource planning in industry should lead to average employment growth over the projection period. Approximately 17,000 hirings of personnel officers are expected over the forecast period, of which about 80% will be for replacement positions. This outlook is based on expectations in the public administration, services and manufacturing sectors, where this occupational group is concentrated.

Earnings

Hansen Consultants reported in a 1986 salary survey that the salary range for personnel administrators was $25,600 to $40,900 per year ($32,300 average salary). Compensation analysts earned between $23,800 and $30,100 ($25,700 average salary) while senior analysts earned between $26,200 and $40,400 ($34,500 average salary). The salary range for recruiting interviewers was $24,500 to $35,800 ($28,100 average salary) and for training specialists $22,300 to $41,000 per year ($31,500 average salary).

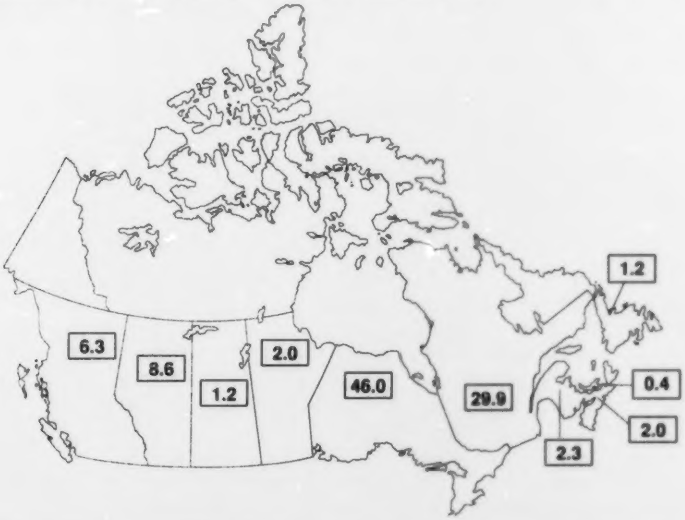
1985 Annual Earnings	$	
Lowest 10% of Workers	19,422	or less
Average Worker	32,004	
Highest 10% of Workers	46,587	or more

Source: 1986 Census

Purchasing Officers and Buyers, Except Wholesale and Retail Trade 1175

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	17,611	0.8	1.3	8,123
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	78	22	8	76	16	97	3
	1986	70	30	7	80	13	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (48)
- Food & Beverages (6)
- Electrical Products (6)
- Machinery (5)

Services (19)
- Education (6)
- Business (5)
- Hospital (3)

Public Administration (13)
- Federal (7)
- Municipal (3)
- Provincial (3)

Purchasing Officers and Buyers, Except Wholesale and Retail Trade 1175

Job Environment

Purchasing officers, also known as buyers, field contractors, procurement officers or purchasing managers, buy materials, goods and services for use or for further processing by their firms. Although primarily responsible for ensuring good value for money spent, purchasers must also keep in mind the continuing smooth operation of the company. Purchasers develop and interpret specifications for goods or materials; study technical publications, documents and advertising materials; interview suppliers; invite tenders and sometimes negotiate with vendors. After prices are set and the agreement to purchase is completed, they must schedule shipments from suppliers and ensure that deliveries are made on time. This is an office occupation with a normal work week of five days and 35 to 40 hours.

Educational Background and Skills

There is no single educational route into these occupations. While still in secondary school, students should take courses in accounting, computer science and economics. While entry-level usually occurs as a clerk or junior buyer, candidates with a post-secondary degree, diploma or certificate can often begin at the buyer level.

Nature of Supply

Most purchasing officers and buyers have a bachelor's degree in business, economics or mathematics. Others are community colleges graduates with specializations in financial management, accounting or business and commerce. Individuals re-entering the labour force are also a major source of supply to the occupation. The flow of people into the occupation from related ones exceeds movement out of the occupation.

Although in the past most workers have been men, the number of women has almost tripled between 1971 and 1981, and then increased a further eight percentage points (from 22% to 30%) between 1981 and 1986. Ontario and Quebec not only account for the majority of purchasing officers and buyers, but also have the highest concentration per capita, that of one buyer per 1,000 people. Most individuals enter the field between the ages of 22 and 26, and begin leaving between 60 and 64 years of age, making 40 the average age in 1986.

Market Conditions and Job Prospects

In the early 1980s, employment growth in this occupation was slower than that of the labour market as a whole. Over this period, purchasing officers experienced difficulties in finding jobs, coinciding with low economic activity as the total number of Canadians with jobs also declined. Because of the concentration in manufacturing and to a lesser extent, the services sector, employment growth was slow, indicating that these occupations are sensitive to economic cycles.

During the 1984-to-1989 period, the rate of employment growth was faster than the early part of the decade, but still less than the average rate in the labour market. The rebound in the manufacturing sector and the strong growth in services improved employment opportunities for purchasing officers and buyers. Current unemployment rates are much lower than in the past and better than the average of all occupations, with the number of hard-to-fill job vacancies much less than average. Statistics imply that current labour market conditions for purchasing officers may tighten, intensifying job searches.

However, employment is vulnerable to changes in the business climate, especially in manufacturing, because more purchasers are employed in manufacturing than in any other industrial sector.

In the 1990s, employment is anticipated to grow at about the average rate for all occupations, with a more favourable outlook in services balanced by a slower growth in manufacturing. New demand will create about 1,375 new positions, but most job openings (6,750) will be the result of replacement for those who retire or leave the occupation.

Earnings

Monthly earnings, by region, for senior buyers in 1986 were as follows:*

Canada	$2,922
British Columbia	$3,100
Alberta	$3,378
Saskatchewan	---
Manitoba	$2,734
Ontario	$2,797
Quebec	---
Atlantic Provinces	$2,516

---

* From a 1986 survey conducted by Stevenson, Kellogg, Ernst and Whinney.

1985 Annual Earnings	$	
Lowest 10% of Workers	18,127	or less
Average Worker	30,089	
Highest 10% of Workers	44,189	or more

Source: 1986 Census

For further information, contact:

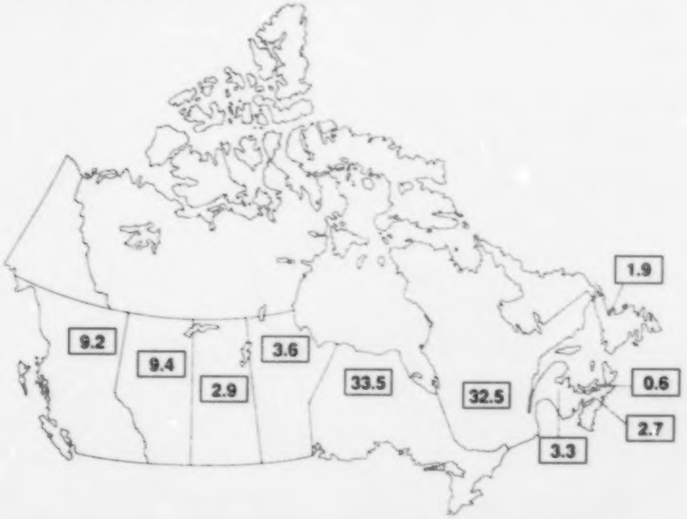
Purchasing Management Association of Canada
Suite 1414
2 Carlton Street
Toronto, Ontario M5B 1J3
(416) 997-7111

Inspectors and Regulatory Officers

1176

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	9,158	4.3	2.9	5,417
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	86	14	10	73	17	94	6
	1986	81	19	6	78	16	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (29)
- Rail Transport (7)
- Urban Transit (6)
- Air Transport (5)

Services (28)
- Business (12)
- Miscellaneous (5)
- Health and Welfare - Non-Hospital (5)

Finance & Insurance & Real Estate (16)

Inspectors and Regulatory Officers

1176

Job Environment

This category includes an enormous array of jobs that require such duties as inspecting beauty salons, boilers, mines, railroads, restaurants and ships and filling other non-government inspecting positions related to safety, quality of service or observance of company policies and procedures.

Educational Background and Skills

This occupational grouping, like its public-sector counterpart (see 1116 - Government Inspectors and Regulatory Officers), covers an extremely diverse group of occupations with specific educational and work experience requirements. Ideally, individuals entering this occupational group have graduated from secondary school, while some areas require additional university or community college study in a specialized field. In nearly all cases, inspectors have acquired lengthy work experience in their chosen area. The amount of experience required generally increases with the complexity of the job. Often inspectors must undergo on-the-job or classroom training, examinations and, in some instances, a certification process.

Nature of Supply

Post-secondary institutions (primarily community colleges) provide graduates specialized in civil technology, electrical/electronic technologies and protection/correction services. University graduates entering the occupation generally have a bachelor's degree in one of the applied technology areas. The type of training necessary depends upon the work involved. A radiation-containment monitor, for example, must be familiar with the use of sensitive electronic equipment, and thus would benefit from a program in electronic technology or instrumentation technology. On the other hand, a railway dining-car inspector must understand health and safety standards, and would therefore require training in food services.

The number of women in this group is below average, but their share increased from 14% in 1981 to 19% in 1986. The majority of inspectors work in Quebec and Ontario, and their average age (40) has remained constant since 1981. The proportion of young people in this group is below that of all occupations, reflecting the need for experience and, in some cases, a post-secondary education. As a result, most people enter this occupation between the ages of 25 and 29 and begin to leave between 60 and 64.

Market Conditions and Job Prospects

Employment growth in these occupations was above average through the 1980s. This is not expected to change, as conditions for inspecting occupations are among the most favourable in the labour market. Unemployment rates tend to be low because employers always need inspectors and are reluctant to lose experienced ones.

Three-quarters of this workforce is employed in the services, transportation, communication and utilities, finance, insurance and real estate sectors. Employment is only mildly affected by changes in the overall business climate, and there is little seasonal variation or part-time work.

Employment growth in the 1990s will continue to exceed that of the economy as a whole. Continued demand is expected to come from the service, finance, insurance and real estate sectors. About 1,715 new jobs and 3,700 replacement openings are expected between 1989 and 1995.

Earnings

Safety managers earned from $31,947 to $58,922 annually in 1986, according to the *Annual Report on Senior and Middle Management Compensation* by the Sobeco Group. For safety and security supervisors, 1986 annual earnings ranged from $27,500 to $46,500, according to Hansen Consultants.

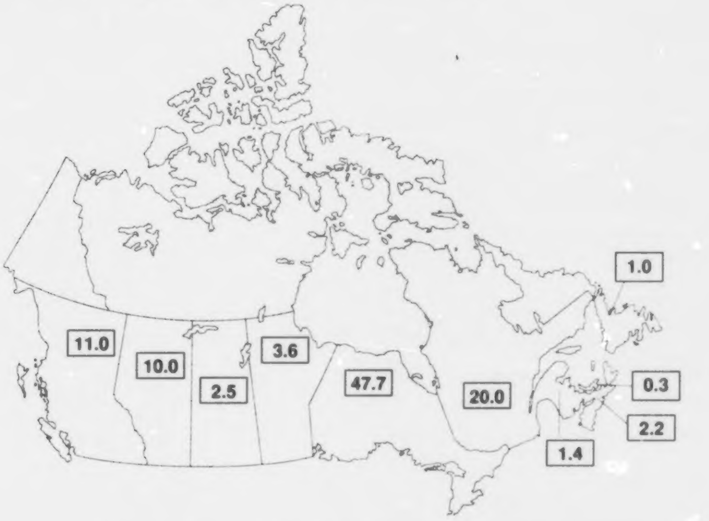
1985 Annual Earnings	$	
Lowest 10% of Workers	19,249	or less
Average Worker	31,894	
Highest 10% of Workers	46,821	or more

Source: 1986 Census

Occupations Related to Public Relations and Communications 1179

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	75,927	5.5	2.1	40,230
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	62	38	9	78	13	92	8
	1986	55	45	9	79	12	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (40)
- Business (15)
- Miscellaneous (10)
- Education (6)

Public Administration (17)
- Federal (7)
- Provincial (7)
- Municipal (3)

Manufacturing (13)
- Food & Beverages (2)
- Printing & Publishing (2)
- Electrical Products (1)

Occupations Related to Public Relations and Communications 1179

Job Environment

This occupational group includes public relations officers, information officers, business consultants, promoters and various agents (business agents, publicity agents, contract agents and others). They usually work in pleasant office surroundings and often travel to meetings and various promotional or other functions. Their work involves developing, implementing and evaluating government and business programs designed to inform the public or target specific groups.

Educational Background and Skills

These occupations generally require individuals who are articulate and imaginative, possess some related post-secondary education and work experience, and have undertaken some in-house training. A bachelor's degree in business, public relations, mass communications or political science, or a community college diploma in financial management and business and commerce programs, is desirable. Interpersonal and communication skills are essential, as personal interaction is basic to all public relations, promotion, agent and negotiating jobs. Other desirable traits are an outgoing nature, sound judgement and a tolerance for stress.

Nature of Supply

Women have increased their share of employment in this field from 38% in 1981 to 45% in 1986. The majority of these positions are in Ontario (48%) and Quebec (20%). Most people enter the field in their mid-20s and many leave in their 40s. This age structure implies that many people see this occupation as a springboard into higher management or other occupations.

Market Conditions and Job Prospects

This occupational group did far better than most during the early 1980s, growing by 5% even though total employment declined. Most firms recognize the need to maintain a good corporate image, helping to create above-average growth in this field. Current labour market conditions for these positions are better than in the labour market at large. A person employed in one of these occupations can generally expect stable, full-time employment, although the possibility for part-time employment has increased. There is no seasonal variation in employment, and this category is less susceptible to changes in general business conditions than other occupations. The employment prospects for this group over the 1989-to-1995 period are slightly better than for all occupations. About 40,000 jobs will open up over this period, with about three-quarters arising from the need to replace those who leave the occupation for various reasons.

Management occupations in public relations and related areas are found in nearly all industrial categories, but are concentrated in the three largest sectors of the economy — services, manufacturing and public administration.

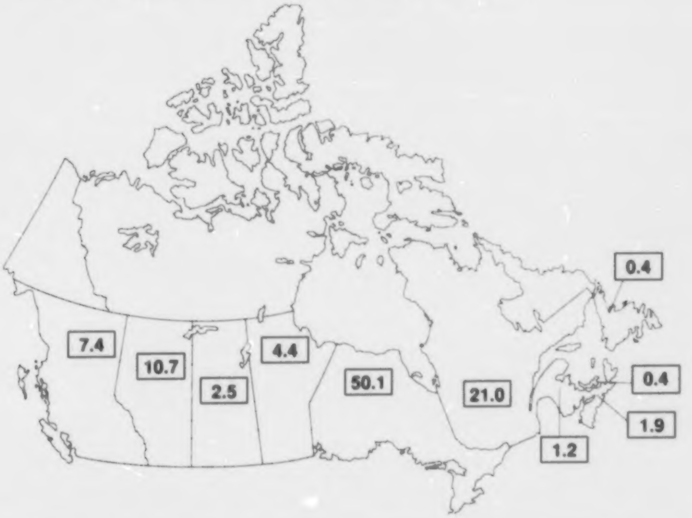
1985 Annual Earnings	$	
Lowest 10% of Workers	17,073	or less
Average Worker	33,387	
Highest 10% of Workers	51,793	or more

Source: 1986 Census

Chemists 2111

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	11,147	2.6	2.0	5,575
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	81	19	9	81	10	96	4
	1986	75	25	8	83	9	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (45)
- Chemicals & Chemical Products (24)
- Food & Beverages (5)
- Primary Metals (4)

Services (27)
- Education (12)
- Business (10)
- Health and Welfare - Non-Hospital (3)

Public Administration (16)
- Federal (9)
- Provincial (6)

Chemists

2111

Job Environment

Chemists study the chemical nature of substances, with the aim of either increasing chemical knowledge (basic research) or developing improved materials and processes (applied research). They also work in quality control and as supervisors in industry. Areas of specialization include organic chemistry, inorganic chemistry, physical chemistry, analytical chemistry, theoretical chemistry, biochemistry, agricultural chemistry, polymer chemistry, geochemistry and clinical chemistry.

Chemists contribute to technological advances in fields such as agriculture, where they have developed new fertilizers and chemicals that increase crop yields. In metallurgy, chemists may research methods of decreasing energy costs and reducing air pollution in the extraction of copper and uranium from low-grade ores. Chemists are found in hospital laboratories, in teaching/research positions in universities and colleges, in government laboratories, provincial research organizations and in laboratories in the manufacturing and processing sectors. Many are employed in quality control.

Educational Background and Skills

The main path of entry into this occupation is through university training in chemistry or a related field. Although the minimum educational requirement is an undergraduate degree, applicants who possess a graduate degree (master's or doctorate) are preferred in research and teaching. These degrees take a further two years for a master's or four years for a doctorate. Experienced chemists who show good leadership and supervising and management skills have the opportunity for advancement, mostly into management.

Nature of Supply

University graduates specializing in chemistry and biochemistry are the most important source of supply to this occupation. Some of them may have college training in chemical technologies before their university schooling.

Between 1971 and 1981, as an increasing number of women chose chemistry for an occupation, their representation rose from 11% to 19%. Because the length of academic training prevents most graduates from entering the occupation before age 24, the number between 25 and 54 has grown somewhat.

Market Conditions and Job Prospects

During the early 1980s, employment grew faster than the all-occupation average. Due to labour market conditions of the 1981-to-1984 period, chemists experienced some difficulty in finding jobs, the trend changing in 1984 as economic conditions improved.

Continued economic expansion resulted in employment growth over the 1984-to-1989 period. This strong growth may reflect the concentration in chemical, chemical products and business services sectors where growth was slightly faster than average. Current unemployment rates are much lower than average and the incidence of hard-to-fill job vacancies has declined in the past two years. Current labour market conditions appear to be more favourable for chemists than for most occupations. Competition for existing jobs may become more intense.

Technological change has little effect on employment in this occupation, and the field is not as susceptible to changing business conditions as other occupations. However, the funding available for chemical research and development is a factor influencing opportunities. Employment is stable year-round and mostly full-time.

The employment outlook suggests above average growth over the next six years, based on the manufacturing, services and public administration sectors. Opportunities for chemists are expected to expand with continued demand for chemical products. Openings will also be favourable for those in education and business services as the policy of contracting-out continues. Over the 1989-to-1995 period, approximately 1,400 new positions will be created because of increased market activity, and about 4,170 replacement openings are expected as people retire, die or leave the occupation for other reasons.

1985 Annual Earnings	$	
Lowest 10% of Workers	19,988	or less
Average Worker	33,428	
Highest 10% of Workers	50,521	or more

Source: 1986 Census

For further information, contact:

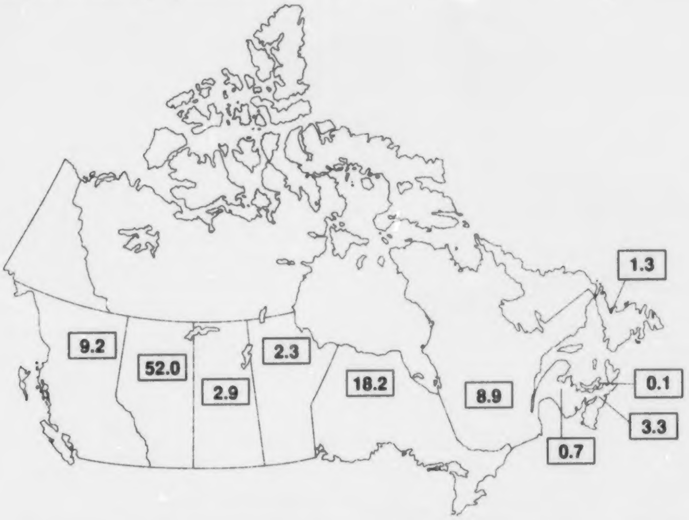
The Chemical Institute of Canada
Suite 550, 130 Slater Street
Ottawa, Ontario K1P 6E2
(613) 232-6252

The Canadian Society of Clinical Chemists
Suite 209, 4 Cataraqui Street
Kingston, Ontario K7K 1Z7
(613) 547-5093

Geologists 2112

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	7,389	0.6	0.9	3,088
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	91	9	13	79	8	95	5
	1986	88	12	7	83	10	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Mining (52)
- Petroleum & Gas (36)
- Mining Services (8)
- Metals (7)

Services (30)
- Business (26)
- Education (3)

Public Administration (14)
- Provincial (7)
- Federal (6)

Geologists 2112

Job Environment

This category includes geochemists, geophysicists, hydrologists, mineralogists, oceanographers and seismologists, all of whom are concerned with the earth's crust and its layers.

Most geologists divide their time between fieldwork (such as mapping) and office work or research. Government geologists may gather and analyze general information about oil and mineral resources. Geologists in industry may examine oil and mineral occurrences and map the geology of company claims, or plan and supervise exploration and drilling projects. Many geologists assess soils and rock formations for the construction of highways and bridges. After acquiring experience in government or industry, some geologists work as private consultants or as executives for mining, exploration or petroleum companies.

Educational Background and Skills

The minimum requirement for this occupation is an undergraduate degree in geology (including such subjects as paleontology, petroleum geology and geochemistry) or a related field of study, such as geophysics or mining engineering. In many cases, the completion of a master's or even a doctorate degree is also required. Some jurisdictions require geologists to be registered. Possibilities for promotion exist for geologists who gain experience, usually into management-level positions such as consultants, advisors, executives or directors of research.

Nature of Supply

The formal education system is the main source of supply to this occupation, with immigration contributing marginally. The proportion of women within the occupation increased from 3% in 1971 to 9% in 1981 and to 12% in 1986. A high proportion of geologists work in Alberta (52%) and Ontario (18%). In 1986, their average age was 36 years.

Market Conditions and Job Prospects

Slow economic growth, weak prices, reduced demand and over-supply in world oil markets curtailed exploration and production in the petroleum industry over the 1981-to-1989 period. As a result the number of employed geologists declined through 1987 but has since rebounded to exceed its 1981 level.

Current labour market conditions appear to have stabilized, as the number of unemployed geologist is about one-half of what it was in 1986. The Canadian Association of Petroleum geologists expects that the continuing co-operation between universities and industry representatives will eventually harmonize the number of graduates and anticipated job openings over the medium-to-longer term.

The outlook for geologists may improve as existing supplies of oil diminish and prices climb. Deep-sea exploration and research should continue to support the demand for oceanographers. Environmental concerns will increase demand for engineering and environmental geologists able to evaluate hazards and recommend solutions to pollution problems, particularly those who specialize in water movement or those who can work with other professionals to conduct environmental assessment studies.

The need for geologists to conduct the search for new sources of energy may be offset by the advent of electronic prospectors and sophisticated aerial detecting devices.

Employment growth in this field will be less than the all-occupation average over the projection period. Approximately 3,000 job openings are expected, of which about 85% will be replacement positions. Growth will be weak in the energy sector, reflecting the slowdown in exploration for petroleum and gas, but opportunities may rebound in the business and mining services industries. Additional opportunities may be generated by joint industry-university research initiatives, such as those at the universities of Toronto and British Columbia and at McGill University in Montreal.

This group of occupations is particularly sensitive to changes in the economy, and geologists are sometimes laid off during curtailments in oil and gas exploration. The incidence of part-time employment in this field increased over the past five years; this is consistent with the increase in part-time employment in the economy as a whole.

Earnings

The Federal Pay Research Bureau reported that junior working-level, or assistant geologists earned an average annual salary of $35,081 in 1986, compared to $43,182 for working-level geologists and $52,970 for senior geologists. Geologists who moved into the first level of supervision earned $64,044 in 1986.

Estimated annual salary ranges of geologists and geophysicists employed by provincial governments in 1986 were as follows:

Nova Scotia . . .	$23,989 - $45,299
Saskatchewan . .	$29,652 - $35,952
Ontario	$32,449 - $47,340
Quebec	$23,706 - $44,610

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**26,023**	**or less**
Average Worker	**47,834**	
Highest 10% of Workers	**74,248**	**or more**

Source: 1986 Census

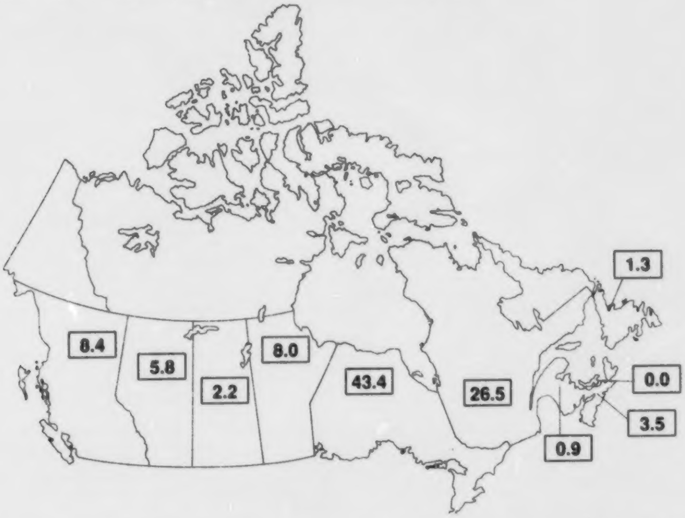
For further information, contact:

Canadian Society of Petroleum Geologists
Suite 505, 206-7th Avenue South West
Calgary, Alberta T2P 0W7
(403) 264-5610

Physicists 2113

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,214	-0.6	3.2	700
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	95	5	6	83	11	98	2
	1986	93	7	6	86	8	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (60)
- Education (25)
- Business (23)
- Hospital (7)

Manufacturing (16)
- Miscellaneous (4)
- Electrical Products (3)
- Chemicals & Chemical Products (3)

Public Administration (16)
- Federal (12)
- Provincial (4)

Physicists

2113

Job Environment

Among the many specialists in this group are condensed matter physicists, industrial and applied physicists, atomic and molecular physicists, geophysicists, particle physicists, medical physicists, mathematical physicists, astronomers, atmospheric physicists and optical physicists. They may develop a product such as a CANDU reactor, or a process such as scanning patients with computer-aided tomography or magnetic resonance imaging; or provide weather-forecasting services, monitor the environment or teach physics. All engage in research. The work of a physicist may be theoretical or experimental research, pure or applied research or any combination.

Educational Background and Skills

A strong background in mathematics is essential. A four-year bachelor's degree in physics or engineering physics is the minimum needed to teach or to conduct experimental work as a technologist, although most physicists have a postgraduate degree. As a result, most enter the occupation in their late 20s.

Nature of Supply

The major source of supply is university graduates in physics and engineering physics. Landed immigrants and temporary foreign workers have been significant contributors to the labour supply in the past. While most engage in active physics research throughout their careers, there are other career opportunities for physicists with experience, leadership abilities and sound judgement. Possibilities include director of a research laboratory, manager of a research department, director of a science museum, president of a university or an entrepreneur.

The Canadian Association of Physicists encourages women to enter this occupation but the number of women increased only marginally between 1981 (5%) and 1986 (7%).

Market Conditions and Job Prospects

The number of employment opportunities for physicists declined between 1981 and 1989 mainly because of a sensitivity to research funding and project development in the private and public sectors, and lowered demand in education.

Currently, labour market conditions have shown improvement over the early 1980s and unemployment has begun to decline. After 1984, employment levels increased as fast as average. A rapid decline in the number of hard-to-fill job vacancies may indicate some tightening of the labour market.

Based on the outlook for services, manufacturing and public administration, employment of physicists should grow faster than average over the 1989-to-1995 period. Job openings will occur as individuals move into managerial and administrative occupations.

Employment of physicists is not greatly affected by economic fluctuations. Opportunities in both the public sector and in colleges and universities may be limited but they should be better in the business and scientific services sector where steady growth is projected.

Over the 1989-to-1995 period, there will be approximately 700 openings, of which about 80% will result as physicists retire, die or leave the occupation for other reasons. Work in this field is mostly full-time and stable throughout the year.

The incidence of part-time employment has increased over the past five years, consistent with an overall increase in part-time employment and resulting from strong gains in the services sector with its large part-time component.

1985 Annual Earnings	$	
Lowest 10% of Workers	23,662	or less
Average Worker	41,890	
Highest 10% of Workers	60,531	or more

Source: 1986 Census, all educational levels

1988 Annual Earnings	$	
Lowest 10% of Workers	50,000	or less
Average Worker	61,000	
Highest 10% of Workers	71,000	or more

Source: 1988 CAP Survey, PhD Degree, sample size 405

For further information, contact:

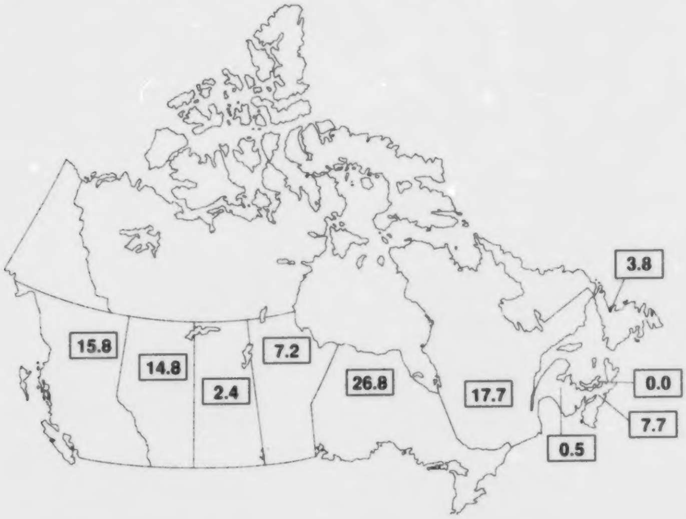
Canadian Association of Physicists
Suite 903, 151 Slater Street
Ottawa, Ontario K1P 5H3
(613) 237-3392

Meteorologists

2114

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%)		Number of Job Openings 1989 - 1995
		Actual 1981 - 1989	Projected 1989 - 1995	
This Occupation	1,031	1.9	1.3	460
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	92	8	0	94	6	98	2
	1986	91	9	2	90	8	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (81)
- Federal (69)
- Provincial (11)

Services (13)
- Business (10)
- Education (2)

Transport & Communications & Utilities (3)

Meteorologists

2114

Job Environment

Meteorologists are involved in the study of climatic conditions for purposes of air pollution control and weather forecasting. Using sophisticated equipment, such as electronic computers, radar and satellites, they observe atmospheric processes and their effect on the earth. Much of this work has direct applications in agriculture, fire prevention and transportation.

Meteorologists also provide weather services, including ice and sea station forecasts, to the public and the aviation industry. In large weather centres, meteorologists work as part of a team of about five meteorologists and technicians.

Educational Background and Skills

A bachelor's degree is usually necessary to enter this occupation. Academic programs in meteorology are offered in Nova Scotia, Quebec, Ontario, Alberta and British Columbia. The federal government,which is the major employer of meteorologists, requires new recruits to successfully complete a nine-month training program. Other qualifications include good interpersonal skills, an aptitude for detailed work, concentration and good judgement.

Nature of Supply

The primary source of supply for this occupation is university graduates specializing in meteorology, physics, mathematics, engineering physics or a related field. Promotion into more specialized jobs or administrative positions is possible for meteorologists interested in program management or in applied research.

Despite a slight increase in the representation of women between 1981 and 1986, the occupation is still dominated by men. The average age of meteorologists rose from 36 in 1981 to 39 in 1986, and the fact that no meteorologists were under 25 in 1986 reflects the long academic training required to enter the occupation. A higher-than-average proportion of workers are in the 25-to-54 age category.

Market Conditions and Job Prospects

Employment growth of meteorologists was faster than the overall average for the labour market in the early 1980s. During this period, the number of meteorologists increased, while the total number of Canadians with jobs actually declined.

Between 1984 and 1988, employment opportunities continued to expand, a result of the rapid growth of meteorological services and demands for atmospheric services.

Current labour market conditions are fairly stable, with the number of unemployed meteorologists continuing to decline and the number of hard-to-fill job vacancies increasing. Although employment is not overly sensitive to economic fluctuations, it is responsive to government spending decisions. If federal and provincial expenditures continue to decrease in this area, job openings in the public sector will be limited, but the increasing use of subcontractors and external services may stimulate job opportunities in business services. Most graduates have no difficulty finding employment. Meteorologists' work is mostly full-time and reasonably stable throughout the year. Most workers at Environment Canada's Atmospheric Environment Service work in shifts, providing around-the-clock weather service.

Public concern about the environment may expand career possibilities for industrial meteorologists. New information systems may also increase job opportunities as more detailed and specialized information becomes available and meteorologists are able to advise chemical and agricultural consultants on weather conditions.

About average employment growth is anticipated over the projection period. Increased market activity will generate about 85 new jobs, and an additional 375 jobs will open up to replace those who retire, die or leave the occupation for various reasons. Meteorologists move into managerial occupations later in their careers. Demand will increase for meteorologists with a high degree of skill and knowledge in their area of expertise.

Earnings

The salaries of meteorologists employed by the federal government in 1986 ranged from $16,696 to $24,144; mid-level jobs paid from $34,539 to $43,009 and senior positions from $49,009 to $59,960.

1985 Annual Earnings	$	
Lowest 10% of Workers	26,054	or less
Average Worker	40,065	
Highest 10% of Workers	55,158	or more

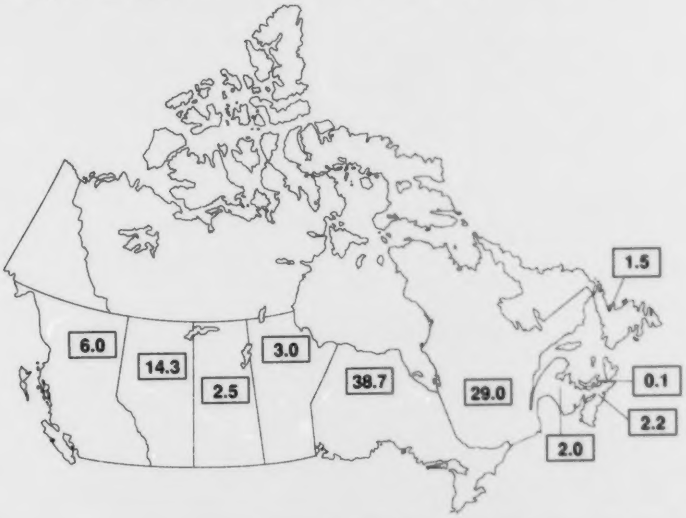
Source: 1986 Census

Physical Sciences Technologists and Technicians

2117

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	17,032	-1.4	1.2	7,480
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	77	23	32	61	7	93	7
	1986	73	27	22	72	6	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (37)
- Chemicals & Chemical Products (12)
- Primary Metals (5)
- Pulp & Paper (4)

Services (28)
- Business (14)
- Education (9)
- Hospital (3)

Public Administration (18)
- Federal (9)
- Provincial (7)
- Municipal (2)

Physical Sciences Technologists and Technicians

2117

Job Environment

This group includes such diverse professionals as chemical laboratory analysts, food technologists, geophysical technicians, water-purification technicians and ballistics technicians. Physical science technologists and technicians are frequently employed to assist physical scientists by carrying out specialized tasks, such as performing experiments and testing results. They may also prepare designs to improve operations in their respective fields.

Chemists, chemical technologists and technicians, and chemical engineers often work together using sophisticated equipment to develop or improve manufacturing processes. In process and quality control laboratories, this involves analyzing raw materials and finished products. Chemical technologists work in the food, paper, metallurgical processing, plastics, petroleum, oil and gas, pharmaceutical, tire and heavy chemical industries.

Geological technologists assist geologists by compiling data related to oil and gas reserves and the feasibility of extracting them. They may also conduct laboratory tests of rock or mineral samples, prepare written reports and make recommendations based on their tests.

Educational Background and Skills

The basic requirement for this occupation is usually a community college diploma involving two to three years of training in a technical/technological career program. Employers may also provide on-the-job training that lasts from one to 12 months, depending on the specialty and the individual's background. An interest in technical and scientific work, the ability to work well with others and good oral and written abilities are all desirable characteristics.

Nature of Supply

The post-secondary education system is the most important source of supply to this occupation. At the college level, career programs in chemical, mining and petroleum resources technologies are major avenues, while university degrees in such areas as chemistry or chemical engineering may also secure entry to the field. With experience and initiative, individuals may move into related positions such as production plant supervisor, research project assistant or sales representative.

The average age of this group increased from 32 in 1981 to 34 in 1986; the number of women increased from 15% to 24% during the 1970s, and rose to 27% by 1986.

Market Conditions and Job Prospects

Mirroring economic conditions, employment levels of physical sciences technologists and technicians declined severely over the 1981-to-1984 period and have still not recovered. Unemployment in this group remains high. Job vacancies suggest that employers are not anticipating difficulty filling positions and unemployed technologists and technicians may face strong competition when seeking employment.

Demand for technicians and technologists is sensitive to government and private sector activity in research and development. The largest employers in this field are the federal government, and the business services and chemicals and chemical products sectors.

In mining, technological innovations such as robot drills may reduce demand for certain technicians. Biochemistry and biotechnology, on the other hand, remain areas of continuing growth. Automatic analyses and computerization of test records may reduce the work of the technicians in some cases, but other technological developments will require more knowledgeable and experienced technicians and technologists.

Over the projection period, employment growth is expected to be about average, with steady increases expected in the areas of business services and chemical products, particularly non-agricultural chemicals.

The number of job openings over this period should approximate 7,400, with approximately 80% of these resulting from replacements for those who retire, die or leave the occupation for various reasons.

Earnings

For more current salary information, contact The Canadian Council of Technicians and Technologists at (613) 238-8123 or at fax (613) 238-8822.

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**18,048**	**or less**
Average Worker	**29,990**	
Highest 10% of Workers	**42,996**	**or more**

Source: 1986 Census

For further information, contact:

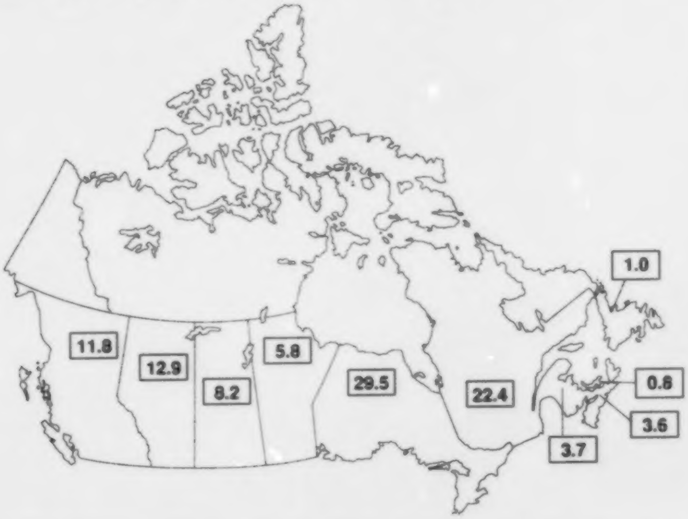
Canadian Council of Technicians
and Technologists
Suite 807, 880 Wellington Street
Ottawa, Ontario K1R 6K7
(613) 238-8123

Agriculturalists and Related Scientists

2131

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	8,791	3.1	1.4	3,998
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	88	12	11	76	13	95	5
	1986	81	19	7	82	11	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (46)
- Provincial (24)
- Federal (18)
- Municipal (4)

Services (14)
- Education (8)
- Business (3)

Forestry (13)

Agriculturalists and Related Scientists

2131

Job Environment

Agriculturalists study ways to improve livestock and vegetable farming, plant breeding, soil composition, water conservation and farm management. The professional agriculturalist is known as an agrologist, a term which includes a number of more specific occupational groups. Agronomists try to increase crop yield and production by improving growth methods and controlling diseases, pests and weeds. Horticulturalists develop and improve orchard and garden plants by applying basic principles of plant biology. In studying the location, characteristics and composition of soils, soil scientists attempt to improve soil management and conservation and to increase soil productivity. To produce high quality animal products, animal scientists conduct controlled breeding research. Agricultural economists study the economic aspects of agricultural problems and the production and marketing of farm products to improve farm operating methods. Employment in the private sector involves developing, producing and merchandising feed, fertilizer, seed, pesticides and agrifood products.

Educational Background and Skills

For employment in this occupation, individuals usually require a four-year undergraduate degree in agriculture/plant science or a related field.

Nature of Supply

The primary sources of supply to this occupation are university graduates from agriculture, animal and plant sciences, and forestry. Other sources include community college graduates and re-entrants from the household sector and, particularly at the doctorate level, immigrants.

Although men continue to form the majority in this occupation, the number of women choosing this career had increased to almost 20% in 1986. Most people in this field work in Quebec and Ontario, although the highest concentration per capita is in British Columbia.

The average age (38) has stayed fairly stable since 1981. An agriculturalist's career normally lasts between 25 and 30 years, with entry taking place between the ages of 25 and 29.

Market Conditions and Job Prospects

Employment growth for agriculturalists was faster than the average over the 1981-to-1984 period. The number of agriculturalists increased rapidly (4% per year), while the number of Canadians with jobs was declining.

Over the 1984-to-1988 period, labour market conditions stabilized. Employment growth slowed somewhat to approximate the average for all occupations. Agriculturalists benefited from Canada's robust employment growth beginning in 1983, and since 1988, the number of unemployed agriculturalists has declined. The number of hard-to-fill job vacancies has declined since 1985 implying some tightening of the labour market.

Job openings could be forthcoming as contracting-out increases. Other openings may arise in companies that do business with farmers, such as processing and marketing firms, or banks. Public concern about environmental protection may also create job opportunities for these scientists.

Employment prospects are good for agricultural scientists involved in biotechnology; demand will likely increase for researchers who have a high degree of skill and knowledge, expertise in related disciplines and an understanding of computers.

Average employment growth is anticipated over the projection period. Continued demand from public administration and forestry is expected to support employment growth. Increased market activity will generate approximately 760 jobs, and a further 3,240 openings will occur as a result of replacements required for those agriculturalists who retire, die or leave the field for other reasons.

Earnings

Salaries for agriculturalists with the federal government in 1986 ranged from $24,788 to $28,666 (entry level); $55,805 to $61,441 (senior level); and $62,619 to $70,763 (managerial level). In business and industry, salaries for well established agrologists can range into six figures.

1985 Annual Earnings	$	
Lowest 10% of Workers	21,260	or less
Average Worker	35,212	
Highest 10% of Workers	52,255	or more

Source: 1986 Census

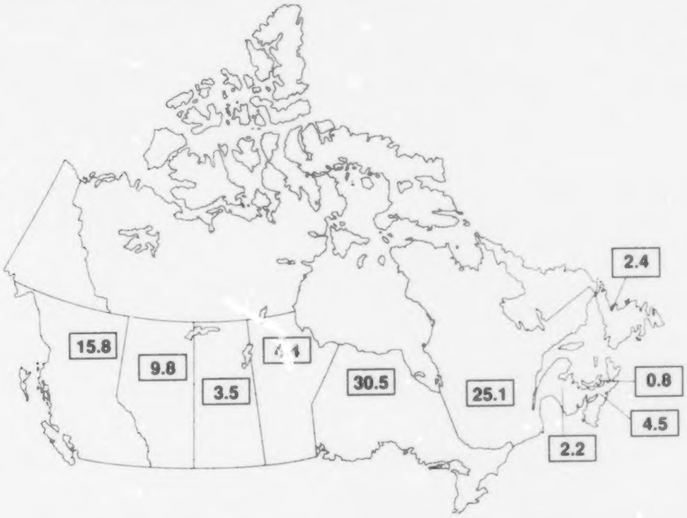
For further information, contact:

Agricultural Institute of Canada
Suite 907, 151 Slater Street
Ottawa, Ontario K1P 5H4
(613) 232-9459

Biologists and Related Scientists 2133

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	8,349	2.4	2.8	4,700
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	70	30	11	83	6	92	8
	1986	65	35	8	86	6	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (46)
- Education (18)
- Hospital (11)
- Business (9)

Public Administration (39)
- Provincial (20)
- Federal (18)
- Municipal (1)

Manufacturing (5)
- Chemicals & Chemical Products (2)
- Food & Beverages (2)

Biologists and Related Scientists

2133

Job Environment

Biologists, who work in zoology, the study of animals, and botany, the study of plants, include anatomists, biochemists, ecologists (or environmental biologists), entomologists, fishery biologists, geneticists, limnologists, medical bacteriologists, microbiologists, neurobiologists, oceanographers, pathologists, pharmacologists, physiologists, plant physiologists and zoologists. Theoretical or research biologists usually divide their time between fieldwork, collecting information on living and fossil organisms, and laboratory research. Applied biologists may inspect food and drugs, conduct surveys on wildlife, fisheries and forests, and advise on management and control. In biotechnological research, specialists combine science and engineering in activities such as the application of plant and animal cells in the production of new pharmaceutical or industrial products.

Educational Background and Skills

An undergraduate degree, normally completed in four years, in biology, zoology or botany is usually required in this occupation. Research scientists in biology require master's or doctoral degrees.

Nature of Supply

The major avenue of entry into this occupation is the post-secondary education system.

The average age in this occupation has increased from 33 in 1981 to 36 in 1986. However, the number of biologists between 25 and 54 increased significantly from 1981 to 1986, while the number in the under-25 and the over-54 age groups decreased correspondingly. The average career of a biologist spans 25 years, with entrance occurring between the ages of 24 and 29. Most biologists are men, although the number of women entering this occupation has increased appreciably.

The majority of biologists work in Ontario and Quebec, although British Columbia has the highest concentration of biologists per capita.

Market Conditions and Job Prospects

Biologists, as most other workers, had some difficulty in finding jobs between 1981 and 1984 as the economy weakened. Improving economic conditions in the latter part of the decade increased job openings.

Over the 1984-to-1988 period, employment in this field was buoyant, growing much faster than the overall average. Reflecting a continuing economic expansion after 1983, opportunities for biologists increased by about 3.5% per year. This strong showing may be due to a concentration in the services sector which displayed significant gains. Current labour market conditions are stable and unemployment among biologists is declining. The number of hard-to-fill job vacancies has also continued to fall, suggesting a tightening in the labour market for biologists.

The relatively young age structure of this group indicates that the occupation offers entry-level positions to recent graduates, while more experienced biologists advance to managerial positions.

Biologists conducting research into new drugs, environmental protection and new plant strains should find jobs, and environmental biologists may be in demand as society seeks solutions to pollution problems. Biotechnological research should offer new opportunities in both the private and public sectors. The expansion of environmental protection as an industry will generate jobs for biologists in such areas as conservation, pollution abatement and control, waste management, and recycling.

The Task Force on Human Resources for Biotechnology has reported a shift toward interdisciplinary programs combining systems engineering with microbiology and other scientific specialties. Graduates with multi-disciplinary backgrounds should therefore have little difficulty finding employment. A shortage of biologists with a PhD exists in research and is expected to increase in the 1990s.

Into the 1990s, employment will grow faster than average. Because of a relatively stable labour market, demand will depend on growth in provincial and federal administration, education, and business services. Employment in the services sector tends to be stable, and fewer job losses occur during periods of slow economic growth. Positions in other sectors, however, may be affected by changes in government research expenditures. Almost 1,500 new jobs will come from increased market activity, and an additional 3,000 openings will occur as biologists retire or leave the occupation.

Earnings

Starting salaries for entry-level jobs in the federal government ranged from $17,354 to $30,983 in 1986. Top positions paid between $40,355 and $48,983.

According to the Federal Pay Research Bureau, 1986 salaries for biological research scientists in private industry ranged from $34,724 to $55,579, with the average salary $46,069.

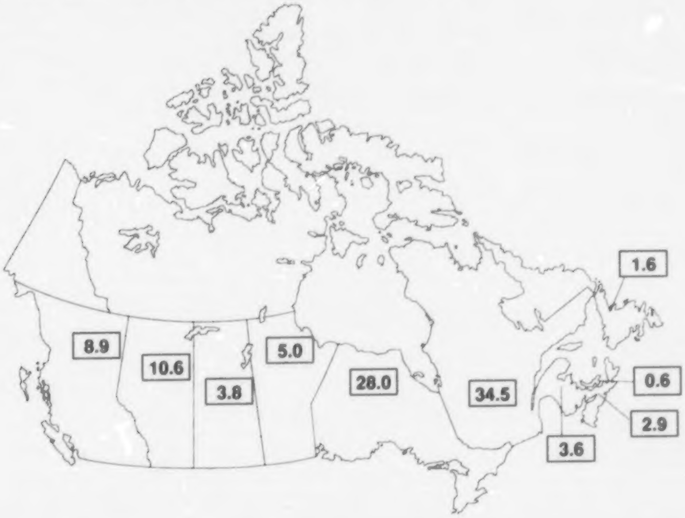
1985 Annual Earnings	$	
Lowest 10% of Workers	18,925	or less
Average Worker	34,830	
Highest 10% of Workers	52,150	or more

Source: 1986 Census

Life Sciences Technologists and Technicians 2135

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	9,226	-0.7	0.5	3,577
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	65	35	40	57	3	90	10
	1986	64	36	34	62	4	91	9
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (33)
- Provincial (17)
- Federal (14)
- Municipal (2)

Services (33)
- Education (19)
- Business (6)
- Hospital (4)

Forestry (13)

Life Sciences Technologists and Technicians

2135

Job Environment

This group performs specialized tasks for life scientists, and includes bacteriology technicians, agricultural technicians, seed analysts, soil technologists, forest technologists, forest technicians and botanical technologists. Their work may range from laboratory experimentation and operation of special test equipment, to preparation of specifications, writing scientific reports and outdoor field work.

Educational Background and Skills

People in this field usually require a knowledge of scientific and mathematical principles and laboratory practices, supplemented by on-the-job training and experience. The minimum educational requirement is graduation from a community college program with a concentration in wildlife or resource management, forestry technologies, biology, microbiology, resource processing, agriculture or a related field. Life sciences technicians are not expected to have the same scientific knowledge as their university counterparts, but they must have a practical working knowledge of the same subjects.

Nature of Supply

The major source of supply to this occupation is the post-secondary education system, with the household sector and, to a lesser extent, immigrants contributing as well. Preliminary data indicate that the number of people leaving this field for others will exceed the number entering it from related ones, suggesting that these are entry-level occupations.

The average age and the age structure stayed fairly constant over the 1981-to-1986 period. A typical career lasts 15 years, with entry normally occurring between the ages of 20 and 24. Almost 40% of this occupational group are women.

Market Conditions and Job Prospects

Over the 1981-to-1984 period the number of employed life sciences technologists and technicians declined by slightly more than 2% per year. Although general labour market conditions improved over the 1984-to-1988 period, reduced public expenditures on research and development and weak growth in the forestry sector kept employment in this profession below its 1981 level. Since 1984, although the numbers of unemployed life sciences technologists and technicians have declined, they still remain stubbornly high.

Employment in these occupations is sensitive to government spending on administration, services and forestry, and to research and development spending in the private sector. Seasonal factors cause employment to peak during the warm months of the year. Ninety percent of these jobs are full-time.

Employment prospects appear best in the area of quality control in agriculture and fisheries, with other opportunities arising in environmental protection, where technical skills are needed for pollution control. Candidates with computer-related, diagnostic skills and multi-disciplinary design or development should experience the least difficulty in securing employment.

Over the 1989-to-1995 period, employment is expected to grow slowly, much less than the average of all occupations. This reflects the weak demand in forestry, which overshadows the more optimistic outlook for the public administration sector. Nevertheless, job prospects should be better than in previous years. About 90% of the openings in this field will result from retirement, death, or people leaving the occupation for other reasons. Approximately 260 new jobs will be created due to increased market activity.

Earnings

For more current salary information contact The Canadian Council of Technicians and Technologists, at (613) 238-8123 or at fax (613) 238-8822.

1985 Annual Earnings	$	
Lowest 10% of Workers	14,833	or less
Average Worker	26,508	
Highest 10% of Workers	39,235	or more

Source: 1986 Census

For further information, contact:

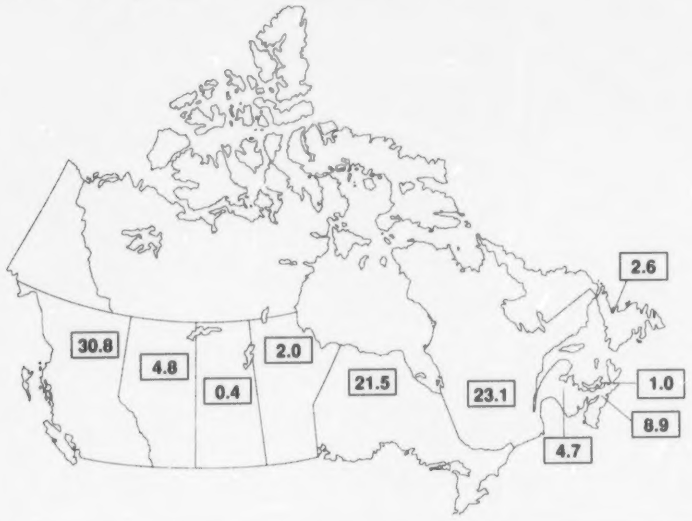
Canadian Council of Technicians
and Technologists
Suite 807, 880 Wellington Street
Ottawa, Ontario K1R 6K7
(613) 238-8123

Occupations in Life Sciences - Forestry

2139

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,141	3.4	1.9	2,063
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	81	19	36	58	6	92	8
	1986	79	21	20	73	7	89	11
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Forestry (55)

Public Administration (23)
- Provincial (16)
- Federal (5)
- Municipal (2)

Services (8)
- Business (3)
- Education (2)

Occupations in Life Sciences - Forestry

2139

Job Environment

Foresters are responsible for all aspects of forest management. They plan economical ways to cut timber; organize forest replanting; study the effects of light, weather and soil on tree growth; and protect trees from fire, insects, pests and disease. They are often called upon to give advice to industry, government and the general public. This may include providing educational programs on forest care.

Forestry technicians have more direct supervisory responsibilities than foresters. Other duties include managing timber sales and estimating amounts of standing timber or levels of future growth.

Educational Background and Skills

Individuals in this field require a four-year undergraduate degree in forestry to become a professional forester or forest engineer and a two/three-year community college diploma to become a forestry technician. Relevant knowledge of geology, engineering, biology or economics is desirable. Practical training lasting one or two years, under the supervision of an experienced forester, is also a requirement for foresters.

Nature of Supply

The post-secondary education system is a major source of supply to this occupation, while other sources include the household sector and immigrants. Over the projection period, the flow of people from these occupations into others is expected to exceed movement into this field from related ones, suggesting that these are entry-level jobs.

The proportion of women in this field increased from 19% to 21% between 1981 and 1987. The average age in 1986 was 33, an increase over five years earlier. A typical career in this field spans 15 years, with entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Employment for this group grew faster than average over the 1981-to-1989 period. This stronger growth may be due, in part, to the long term forest-management agreements requiring the skills of foresters and forestry technicians. There appears to be some instability with respect to current labour market conditions as more forestry technicians are becoming unemployed. As unemployment increases and the hard-to-fill job vacancies decline, job search strategy will become intense.

The employment outlook for this occupational group calls for slightly above-average growth over the next six years, based on prospects for the forestry and public administration sectors.

A moderate recovery in forestry output is anticipated, despite tariffs imposed on Canadian lumber products abroad and export taxes on softwood lumber. Demand for this group may slow somewhat as changing attitudes towards the industry coupled with initiatives in recycling begin to have an impact. The health of the construction industry is another factor that influences demand for forestry products and hence employment in these occupations. Most job opportunities will be replacement openings which are expected to account for 1,560 positions. Approximately 500 new jobs will be created over the projection period due to increased market activity. Employment in this field is usually full-time, although it fluctuates during the year, peaking during the warm months of the year.

Earnings

In 1986, foresters in the federal public service earned from $17,354 to $31,264 (entry level); $40,036 to $48,239 (middle level); and $52,806 to $60,237 (senior level).

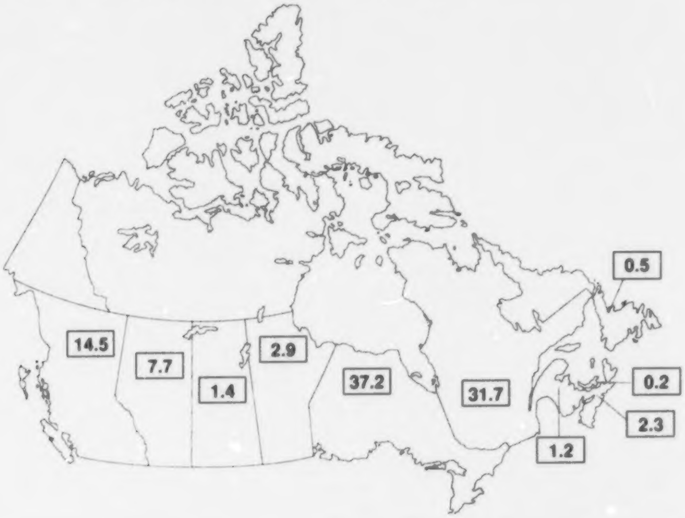
1985 Annual Earnings	$	
Lowest 10% of Workers	21,571	or less
Average Worker	33,182	
Highest 10% of Workers	47,891	or more

Source: 1986 Census

Architects 2141

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	9,111	2.6	1.1	3,139
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	92	8	3	84	13	93	7
	1986	87	13	3	85	12	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (82)
- Business (81)
- Education (1)

Public Administration (8)
- Provincial (3)
- Municipal (3)
- Federal (3)

Construction (3)

Architects

2141

Job Environment

Architects design houses, buildings and other structures, integrating artistic, social, economic and environmental principles. This occupational group also includes naval architects, who design boats and ships, and landscape architects, who design parks and recreation areas. Design work requires close consultation with clients and planning officials, while construction requires architects to collaborate with builders, contractors and construction managers, sometimes even on site, to ensure compliance with specifications.

Educational Background and Skills

In 1986, 69% of architects had university degrees in architecture, while 11% had degrees in other applied sciences, engineering, resource management or other fields. Nine percent had community college or technology institute diplomas in architectural design or draughting technology and other subjects. To become a registered architect, candidates must first complete an undergraduate or graduate program in architecture, or follow a supervised on-the-job learning program. Their academic qualifications are assessed by the Canadian Architectural Certification Board, and they must then work under the supervision of a registered architect for a stipulated period. Registration and membership may then be obtained in a provincial architectural association.

Nature of Supply

This is a predominantly male field, although female participation has been growing in recent years, having reached 13% in 1986. The age structure of the occupational workforce is similar to that of the average for all occupations, except for a relatively smaller number in the 15-to-24 year age group due to the time needed to complete training.

A typical career in architecture includes a period of employment as a draughtsperson early on, employment as an architect for some 15 to 20 years, and later, movement into management occupations. Immigration is a minor source of trained architects.

Market Conditions and Job Prospects

Employment in this field is somewhat sensitive to economic conditions, as it is closely related to construction activity. The 1989-to-1995 period will see moderate growth in construction, although this will vary by region. Employment growth for architecture will be modest, however, since much of this activity will take place in the industrial and resource sectors, areas that require less architectural design work than is the case for residential, commercial and institutional building construction. Furthermore, replacement demand resulting from retirements and career changes will likely be lower than the all-occupation average.

1985 Annual Earnings	$	
Lowest 10% of Workers	17,467	or less
Average Worker	34,252	
Highest 10% of Workers	51,243	or more

Source: 1986 Census

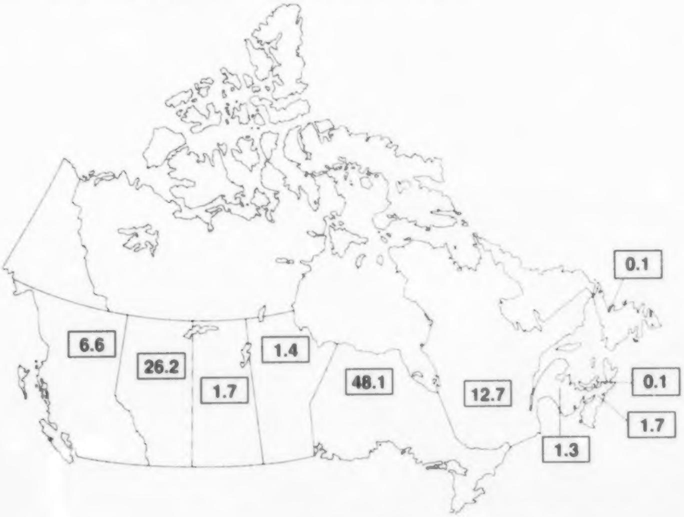
For further information, contact:

Royal Architectural Institute of Canada
328 Somerset Street West
Ottawa, Ontario K2P 0J9
(613) 232-7165

Chemical Engineers 2142

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	5,904	0.9	1.4	2,154
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	94	6	15	75	10	98	2
	1986	91	9	9	83	8	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (55)
- Chemicals & Chemical Products (23)
- Petroleum & Coal Products (13)
- Rubber & Plastics (3)

Services (19)
- Business (17)
- Education (2)

Mining (12)
- Petroleum & Gas (11)

Chemical Engineers 2142

Job Environment

Chemical engineering specialists include people involved in process control, and pulp and paper, nuclear, petrochemical and environmental engineering. They are concerned with the research, design and development of systems and operations involving chemical processes. Their work extends beyond industrial chemicals into synthetic textiles, foods and biotechnology.

Chemical engineers may work in offices, or in factories where they monitor the operation of equipment. Junior engineers spend more time in the field, gradually moving into offices and laboratories as their experience and responsibilities increase. Senior engineers may assume engineering and supervisory responsibilities for entire plants or major projects. Chemical engineers may be required to work long, intensive hours to complete projects within deadlines or to deal with emergencies.

Educational Background and Skills

Most chemical engineers have university degrees in subjects related to their work: in 1986, 61% had degrees in chemical engineering, 11% in other engineering disciplines and 6% in chemistry, while a further 3% had diplomas in chemical engineering technology from technology institutes or community colleges. The recommended way to enter the field is to obtain a degree in chemical engineering and, after two years of work experience, register with a provincial engineering association to become a Professional Engineer. The academic requirement may also be met by writing a set of examinations prescribed by the provincial associations. Professional engineering status is required for many jobs in chemical engineering.

Nature of Supply

While most chemical engineers are male, more women are entering the occupation; in 1986 women comprised 9% of the profession. The workforce in chemical engineering is more "middle aged" than the occupational norm, with relatively fewer persons in the 15-to-24 and 55-plus age categories. A common career pattern among chemical engineers is to move from "hands-on" engineering to management occupations after 10-to-15 years' experience. Most people enter the occupation in their mid-20s. Immigration has been a steady, but minor source of trained chemical engineers.

Market Conditions and Job Prospects

Most chemical engineers are employed either directly or indirectly by manufacturing industries and, to a lesser extent, mining industries. Within manufacturing, the chemicals and chemical products, petrochemicals and plastics sectors are the main areas of employment. According to projections of economic activity in these industries, the employment of chemical engineers is expected to grow at about the same rate as the all-occupation average over the 1989-to-1995 period. In addition to new jobs resulting from this employment expansion, positions will also open as a result of retirements and career progressions to management. While the number of retirements is expected to be relatively low (due to the comparatively small size of the 55-plus age group), the number of middle-aged chemical engineers moving to other occupations (especially management positions) should be significant.

Employment of chemical engineers is somewhat sensitive to economic fluctuations, but is relatively independent of seasonal variations.

Earnings

In 1988, employers recruiting new university graduates in chemical engineering offered an average monthly salary of $2,459.

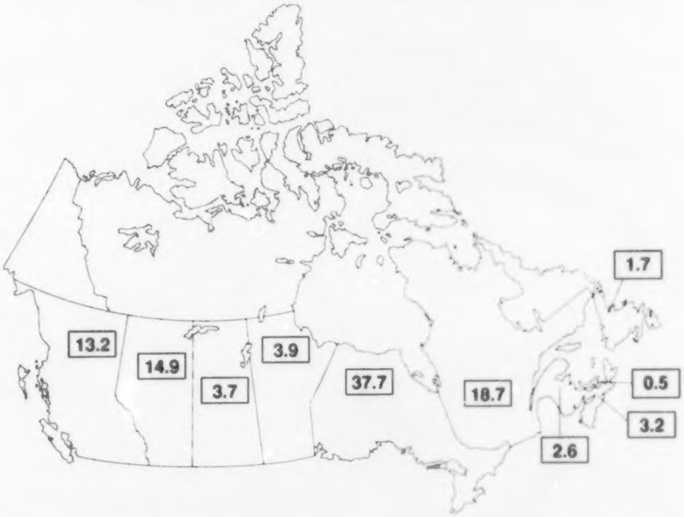
1985 Annual Earnings	**$**	
Lowest 10% of Workers	**28,379**	**or less**
Average Worker	**45,751**	
Highest 10% of Workers	**68,581**	**or more**

Source: 1986 Census

Civil Engineers 2143

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	29,634	-0.5	-1.1	5,843
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	7	82	11	97	3
	1986	96	4	5	83	12	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (40)
- Business (37)
- Education (1)

Public Administration (22)
- Municipal (8)
- Provincial (8)
- Federal (6)

Transport & Communications & Utilities (13)
- Electric Power (3)
- Miscellaneous Transport (3)
- Rail Transport (2)

Civil Engineers

2143

Job Environment

Civil engineers design and supervise the construction of buildings and other structures. Specialties within civil engineering include structural design, construction, transportation, road and highway, pollution control and municipal engineering. Civil engineers determine the strength and other qualities required of the structures they design. They develop the specifications and procedures to be followed during construction. During design construction or maintenance work, they confer with clients, architects and construction personnel regarding project requirements. They inspect and test existing structures (e.g., bridges and tunnels) to ensure safety and proper operation. They may have to work prolonged hours during the course of a major project or during emergencies. Civil engineers work in an office environment, but often spend time out-of-doors at construction sites.

Educational Background and Skills

The majority of civil engineers have university degrees in civil engineering, while a significant proportion hold degrees in other engineering disciplines or diplomas in engineering technology from technology institutes or community colleges. The recommended path into the profession is via an accredited university program in civil engineering and, after two years of work experience, registration as a Professional Engineer with a provincial engineering association. Professional engineering status is required by provincial law for many civil engineering duties. The academic requirement may also be met by writing examinations set by the provincial engineering associations.

Prospective civil engineers should have a good aptitude for mathematics and physics and should have good communication skills. Employers in this field are increasingly demanding specific skills of their new employees.

Nature of Supply

Although most civil engineers are male, the number of women entering the field is growing, and women now account for 4% of the occupational workforce.

The workforce in civil engineering is more "middle aged" than the all-occupation average; this is a result of the time needed for training. Most people enter this field between the ages of 23 and 26. Many civil engineers progress from engineering to management duties in their careers, although this is not as common among civil engineers as it is in other engineering disciplines.

Immigration has provided a significant number of trained civil engineers to the labour market in response to economic conditions.

Market Conditions and Job Prospects

Employment for civil engineers is concentrated in service industries (mainly consulting engineering firms), government, and the transport and utilities sectors. Most of the work done by civil engineers in these industries concerns construction, structural maintenance and related activities. Employment of civil engineers is expected by industry experts to grow at a rate in excess of that shown on the opposite table. Projections of economic activity over the 1989-to-1995 period indicate that employment of civil engineers in support of new construction projects should increase by approximately 22%. The deteriorating condition of many of the roads, bridges, sewers and other elements of Canada's municipal infrastructure will lead to reconstruction or replacement projects over the next decade. Attrition due to retirements, career progression to management and other career changes will create additional demand.

The level of employment of civil engineers is closely linked to construction output, and is therefore sensitive to fluctuations in general economic activity.

Earnings

In 1988, employers recruiting new graduates in civil engineering offered an average monthly salary of $2,518.

1985 Annual Earnings	$	
Lowest 10% of Workers	24,966	or less
Average Worker	41,976	
Highest 10% of Workers	60,393	or more

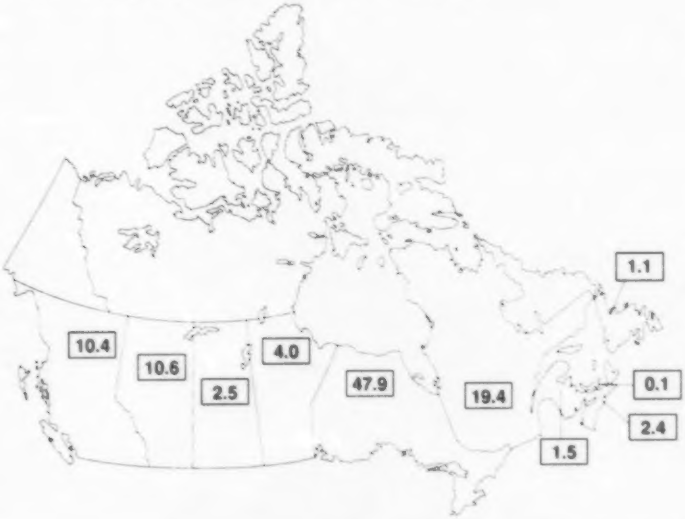
Source: 1986 Census

Electrical Engineers

2144

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	35,655	3.4	1.9	14,248
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	6	83	11	97	3
	1986	95	5	6	85	9	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (33)
- Electric Power (16)
- Telephone & Telegraph (13)
- Radio & TV Broadcasting (2)

Manufacturing (32)
- Electrical Products (18)
- Machinery (5)
- Miscellaneous (2)

Services (22)
- Business (18)
- Education (2)

Electrical Engineers 2144

Job Environment

Electrical engineering incorporates the two main specialties of electrical power and electronics engineering. Electronics engineers are involved with telecommunications, control systems, computers, navigation systems, electronic circuits and avionics. They seek cost-effective solutions to the design, production and maintenance of electronic apparatus. They also discuss technical matters with management, confer with colleagues, direct the work of others and participate on multi-disciplinary teams. Engineers specializing in electric power are concerned with its generation and distribution. They are involved with the design of generating, transmission and distribution systems, and with operations and maintenance. They must work with management and with other technical and trades staff.

Work may be in an office, on a factory floor or outdoors. Although the physical demands of the work are light, electrical engineers may be exposed to hazards and therefore must be aware of safety measures.

Educational Background and Skills

In 1986, 44% of electrical engineers had university degrees in electrical engineering, 7% had degrees in other engineering disciplines, and 15% had diplomas in engineering technology from community colleges or technology institutes. The preferred means of entry to electrical engineering is via an accredited university program, followed by two years work experience and subsequent registration as a professional engineer with a provincial engineering association. The academic requirement may also be met by writing examinations set by the provincial associations. Professional engineer status is required for many electrical engineering jobs.

Prospective electrical engineers should have a strong aptitude for mathematics and physics and should have good communication skills.

Nature of Supply

Most electrical engineers are men, although female representation is growing, and by 1986 women accounted for 5% of this workforce. Women are encouraged to consider electrical engineering as a career in view of the favourable employment prospects and high earnings potential.

The work force in electrical engineering is more "middle aged" than the all-occupation average, with the proportion of people in both the 15-to-24 and the 55 plus age groups relatively low. Most people enter this occupation between the ages of 22 and 27, reflecting, in part, a long training period. Many electrical engineers move from "hands-on" engineering to management in their careers, although this may take place somewhat later than is the norm in some other engineering disciplines.

Immigration has been an important source of trained electrical engineers in past years, responding to economic conditions.

Market Conditions and Job Prospects

The bulk of employment of electrical engineers is in utilities (electric power and telecommunications), manufacturing and consulting engineering firms. According to economic projections for these industries over the 1989-to-1995 period, employment of electrical engineers should increase at a rate greater than the all-occupation average. Over the long term, the proliferation of electronics in virtually every aspect of life and the expansion of the communications infrastructure (e.g., cellular telephone systems) will create many employment opportunities for electronics engineers. Similarly, the need for electrical power engineers should increase as Canada's electrical generating and transmission capacity grows. Job openings will also result from replacement needs stemming from retirements, occupational changes and normal career progression by people now working as electrical engineers.

Employment of electrical engineers is somewhat sensitive to economic fluctuations.

Earnings

In 1988, employers recruiting new graduates in electrical engineering offered an average monthly salary of $2,451.

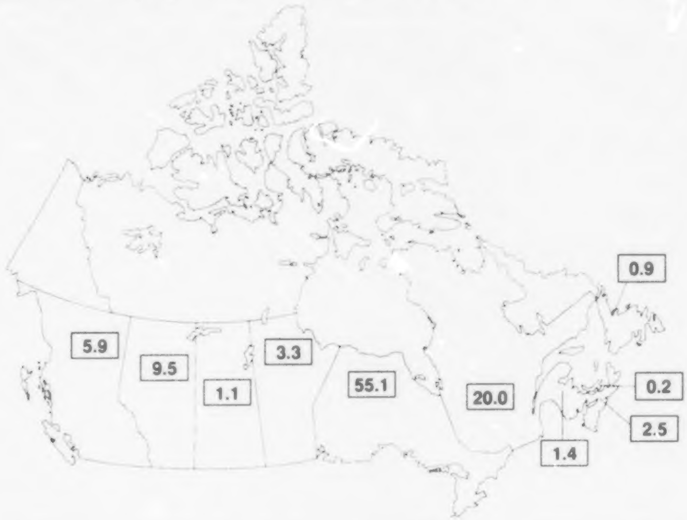
1985 Annual Earnings	$	
Lowest 10% of Workers	26,495	or less
Average Worker	41,192	
Highest 10% of Workers	58,108	or more

Source: 1986 Census

Industrial Engineers 2145

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	17,477	0.3	1.1	6,045
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	94	6	5	80	15	98	2
	1986	90	10	4	84	12	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (61)
- Electrical Products (9)
- Motor Vehicles & Trailers & Parts (8)
- Machinery (6)

Services (13)
- Business (8)
- Education (1)
- Hospital (1)

Transport & Communications & Utilities (8)
- Electric Power (3)
- Telephone & Telegraph (1)

Industrial Engineers 2145

Job Environment

Industrial engineers are responsible for achieving efficient industrial production though the effective use of resources, materials, machinery and human resources. They draw on a wide range of skills from other engineering disciplines, and from the physical sciences, systems analysis, economics and psychology. Industrial engineers are involved in a variety of tasks. They plan and design plant layouts; analyze production costs; determine optimum inventory levels and product flow schedules; analyze the reliability and performance of plant equipment; and sometimes supervise technical staff.

Typical example of engineers are cost engineer, plant engineer, quality control engineer and methods engineer. Employment can be found in an industrial setting or in consulting firms.

Educational Background and Skills

Most industrial engineers obtain a professional degree from an engineering school of a recognized university. After two years of engineering employment, graduates of accredited programs may register as members of any of the 10 provincial or two territorial professional engineering associations. People without recognized academic qualifications may obtain registration by passing exams set by provincial registering bodies. Registration is required for certain kinds of work.

Industrial engineers need strong communication and interpersonal skills since they deal with management and direct the work of others. Increasingly, those in a manufacturing setting must be well versed in all aspects of the industry in which they are employed.

Although the currently accepted means of becoming an industrial engineer is to graduate from a university program specializing in the field, many people now working in this area have other backgrounds — most have degrees in mechanical engineering or other engineering disciplines, in some cases with additional training in business administration, and a small number have engineering technology diplomas from community colleges or technology institutes.

Nature of Supply

Roughly 90% of industrial engineers are male, although more and more women are entering this field. The workforce in this occupation is more "middle aged" than the all-occupation average, a result of the length of time needed for training and registration.

Industrial engineers with degrees in industrial engineering tend to move into management occupations relatively early in their careers. This rapid career progression should create job opportunities for graduates of university programs in industrial engineering.

Market Conditions and Job Prospects

The employment outlook for industrial engineers is determined by the performance and growth of the manufacturing sectors, which accounts for almost 70% of jobs in this occupation. Industry experts expect stronger employment growth for industrial engineers than that shown on the opposite table. Over the 1989-to-1995 period, most manufacturing industries (especially those in Central Canada) are expected to see a high level of investment focussed on modernization and expansion. This should create a favourable employment environment for industrial engineers with up-to-date skills and knowledge of the latest production methods and the most effective analytical techniques. Employers in this field are increasingly seeking people with specific experience and skills, and consequently people planning a career in industrial engineering should tailor their curricula to specific industrial settings. People without educational backgrounds in industrial engineering can expect modest employment growth.

Employment in this occupation has shown moderate variation due to changes in the economic climate, but little seasonal change.

Earnings

In 1988, the average monthly salary offered to new recruits was $2,439.

1985 Annual Earnings	$	
Lowest 10% of Workers	23,514	or less
Average Worker	37,112	
Highest 10% of Workers	51,795	or more

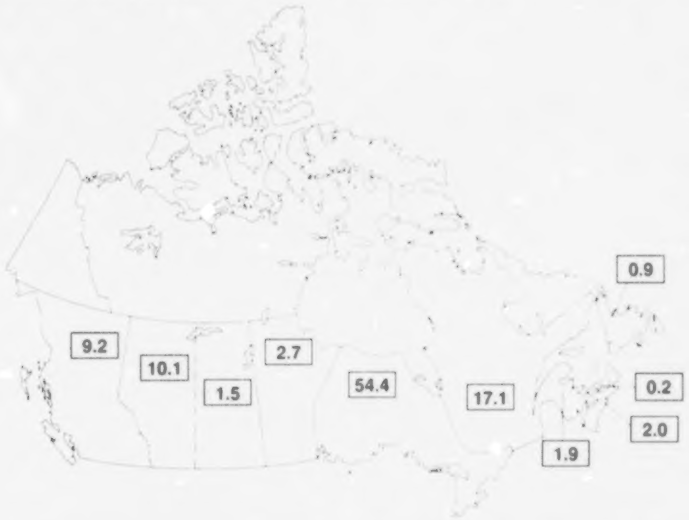
Source: 1985 Census

Mechanical Engineers

2147

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	24,277	3.0	2.3	10,483
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	7	78	15	98	2
	1986	97	3	6	81	13	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (48)
- Machinery (9)
- Motor Vehicles & Trailers & Parts (8)
- Metal Fabricating (4)

Services (26)
- Business (23)
- Education (2)

Transport & Communications & Utilities (8)
- Electric Power (4)

Mechanical Engineers

2147

Job Environment

Mechanical engineers design and develop machinery and systems for manufacturing and materials processing, transportation, power generation and a multitude of other applications. They are also employed to oversee the installation, operation and maintenance of mechanical systems. Common specialties in mechanical engineering include environmental control in the heating, ventilation and air conditioning of buildings, noise control and energy management, production engineering and aerodynamics. These jobs, may also include supervisory and management duties, such as preparing cost and scheduling estimates; developing maintenance schedules and programs; investigating maintenance problems and mechanical failures; preparing contracts and evaluating tenders for industrial construction; and supervising other technical staff. The work of mechanical engineers is frequently in or near an industrial environment, but much is in an office setting.

Educational Background and Skills

The most common educational background among mechanical engineers is a university degree in mechanical engineering, although more than 10% have qualifications in mechanical engineering technology at the community college or technology institute level. Many jobs require professional engineering status, which is obtained by registration with provincial engineering associations. People are eligible for registration following graduation from an accredited university program and two years of supervised work experience. People with other academic backgrounds may obtain registration by writing examinations set by the provincial associations.

Mechanical engineers should have good communications skills and should have a strong aptitude for physics and mathematics.

Nature of Supply

While the great majority of mechanical engineers are men, women are entering the field in increasing numbers and are encouraged to do so in view of the good employment outlook and the potential for high earnings. The age distribution of the mechanical engineering workforce is slightly older than the average for all occupations. Most people enter this occupation between the ages of 22 and 25, and usually remain until their late 30s or early 40s before moving to management, sales or related functions. Immigration has provided the labour market with a significant number of trained mechanical engineers in past years.

Market Conditions and Job Prospects

Projections of economic activity indicate that the employment outlook for mechanical engineers is good, with employment expected to increase at a rate considerably above the average for all occupations. Roughly 70% of people in this field are employed by the manufacturing sector. Over the 1989-to-1995 period, a continued high level of investment is expected to allow the expansion and modernization of many manufacturing industries, especially in Central Canada; this will result in demand for engineers with up-to-date skills. Replacement needs resulting from retirements and from the usual career progression leading to management will provide additional job openings.

Employment of mechanical engineers exhibits a moderate degree of sensitivity to general economic conditions, but very little seasonal variation.

Earnings

In 1988, employers offered new graduates an average monthly salary of $2,479.

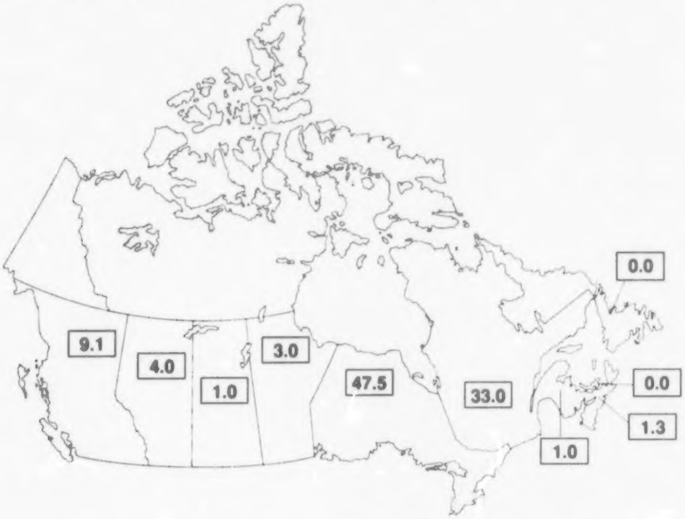
1985 Annual Earnings	$	
Lowest 10% of Workers	25,260	or less
Average Worker	40,778	
Highest 10% of Workers	58,759	or more

Source: 1986 Census

Metallurgical Engineers 2151

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,821	0.0	2.1	754
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	6	82	12	97	3
	1986	94	6	4	83	13	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (65)
- Primary Metals (42)
- Metal Fabricating (8)
- Aircraft & Parts (4)

Services (12)
- Business (9)
- Education (2)
- Miscellaneous (1)

Mining (9)
- Metals (8)

Metallurgical Engineers

2151

Job Environment

Metallurgical engineers are involved with the chemical and physical treatment of metals (such as refining, purification and alloying) and their subsequent transformation into useful products. After ores and minerals have been extracted from the earth, metallurgical engineering processes are used to refine and purify metals such as iron, copper, nickel and aluminum. Further treatment is sometimes used to form metallic alloys or compounds, often by casting, forging, rolling and sintering; metallurgical engineers design and calibrate these processes. Increasingly, metallurgical engineers are becoming involved with ceramics and materials other than metals. Much of their time is spent researching and designing processes at production facilities or in an office, and they often have supervisory duties in addition to their technical responsibilities.

Educational Background and Skills

As of 1986, 44% of metallurgical engineers possessed university degrees in the discipline, while an additional 20% had degrees in a technical subject. Many jobs for metallurgical engineers require the status of Professional Engineer, which is conferred upon registration with a provincial engineering association. Requirements for registration include completion of an accredited engineering program and two years of supervised work experience. Those with other educational backgrounds may obtain registration by writing examinations set by the provincial associations. An aptitude for chemistry and other science subjects is desirable in this field.

Nature of Supply

The proportion of women in the occupation has been rising in recent years, and reached 6% in 1986. Women are encouraged to consider metallurgical engineering as a career in view of the good job prospects and potentially high incomes. The workforce in metallurgical engineering is slightly older than the average for all occupations, primarily as a result of a later average age of entry (between 24 and 26 years) to the labour market due to the time spent in school. A common career pattern in this field is to move from "hands-on" engineering to management; this is typical for engineering disciplines. Immigration has provided a small, but significant, number of trained personnel to the labour market.

Market Conditions and Job Prospects

Most metallurgical engineers are employed either directly or indirectly in the manufacturing and mining industries. The outlook for these industries indicates that employment of metallurgical engineers should increase at a rate greater than that for the average of all occupations; replacement openings resulting from retirements and career progression will add to this number. The level of employment in this occupation is sensitive to general economic conditions, since manufacturing and metal processing show considerable variation over the business cycle, but it shows little seasonal fluctuation.

Earnings

In 1988, employers recruiting graduates with bachelor's degrees offered an average monthly salary of $2,588.

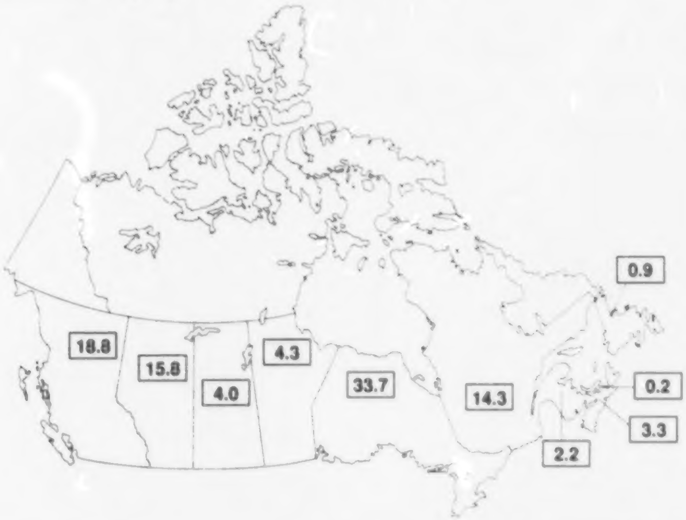
1985 Annual Earnings	$	
Lowest 10% of Workers	26,297	or less
Average Worker	39,967	
Highest 10% of Workers	56,295	or more

Source: 1986 Census

Mining Engineers 2153

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,724	1.4	3.1	1,844
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	6	79	15	95	5
	1986	96	4	5	82	13	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Mining (58)
- Metals (32)
- Petroleum & Gas (8)
- Coal (8)

Services (23)
- Business (22)

Manufacturing (11)
- Primary Metals (8)

Mining Engineers

2153

Job Environment

Specialists in this group include design engineers, mine exploration engineers, mine production engineers, mineral engineers and mine safety engineers. Their activities involve surveying mineral deposits and ore bodies to determine whether mining is commercially viable, deciding on the best method of mining, planning and designing appropriate mining facilities, overseeing the construction of mine shafts or pits, and choosing the extraction processes. Decisions are made with a view to efficiency, economy and safety.

Mining engineers deal with management, direct the work of others and confer with fellow engineers and technicians. They work in an office environment and at mine sites. Positions in this occupation are often located in isolated communities.

Educational Background and Skills

A university degree in mining engineering is the most common educational qualification among people in this occupation; degrees in geology or other engineering disciplines, and diplomas at the college or technology institute level in mining and metal processing are held by a significant minority. Many jobs for mining engineers require professional engineering status, which is obtained by registration with a provincial engineering association — this in turn requires graduation from an accredited engineering program and completion of a two-year articling period. People with other educational backgrounds may meet the academic requirement by passing examinations set by the provincial associations.

Nature of Supply

In 1986, 96% of mining engineers were men, but the number of women in the occupation is increasing. The labour force in this occupation is slightly older than the average for all occupations, primarily as a result of the length of time required for training. Most people enter this occupation between the ages of 23 and 26. In recent years, immigration has declined as a source of trained mining engineers to the labour market.

Typically for those in engineering disciplines, mining engineers often move from "hands-on" engineering to management occupations over their careers. Some find employment in geology or in other engineering applications.

Market Conditions and Job Prospects

Projections of economic activity indicate that employment levels for mining engineers should increase at a rate above the average for all occupations over the 1989-to-1995 period. Although mineral production in Canada is expected to increase only modestly over the period, producers will need to employ state-of-the-art engineering to maintain their competitive positions in the face of an appreciated Canadian dollar and to minimize the environmental impact of their operations. Job openings will also result from replacement demand, as practicing mining engineers retire, move on to management jobs or make other career changes.

The mining industry is susceptible to wide swings in activity over the business cycle, causing some variability in employment. Seasonal variation in employment is relatively low compared to non-technical occupations in mining.

1985 Annual Earnings	$	
Lowest 10% of Workers	28,025	or less
Average Worker	46,682	
Highest 10% of Workers	69,205	or more

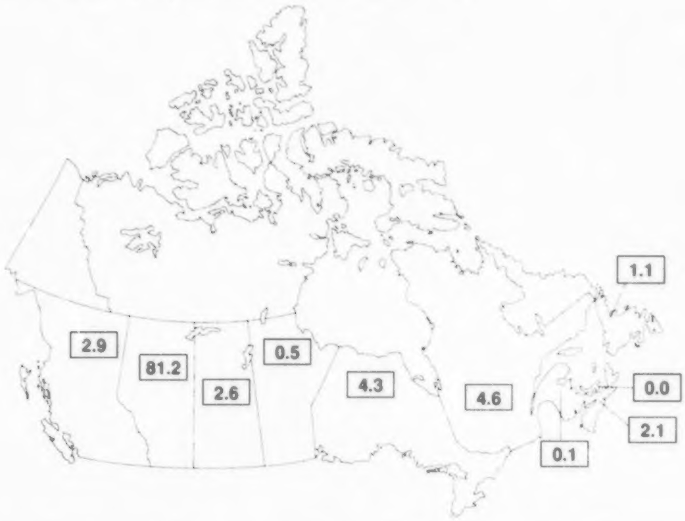
Source: 1986 Census

Petroleum Engineers

2154

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,727	-1.0	0.6	1,154
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	95	5	12	82	6	98	2
	1986	93	7	6	87	7	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Mining (64)
- Petroleum & Gas (55)
- Mining Services (9)

Services (18)
- Business (18)

Manufacturing (8)
- Petroleum & Coal Products (7)
- Chemicals & Chemical Products (1)

Petroleum Engineers

2154

Job Environment

Petroleum engineers work at finding oil and gas deposits, determining their size and quality, and deciding on the best methods for extraction. They are involved in all aspects of the petroleum industry, from exploration and recovery to refining and distribution. Their work requires the practical application of the principles of physics, chemistry and geology and involves extensive calculations, cost estimates, design work, scheduling and supervision. Petroleum engineering specialties include drilling, reservoir management, production engineering and pipeline engineering. Petroleum engineers do much of their work at drill sites or processing plants, which are often located in isolated areas; as they accumulate experience they do more work in an office environment.

Educational Background and Skills

Sixty percent of petroleum engineers have university degrees in an engineering discipline or a related subject. The recommended way of entering the occupation is by graduation from an accredited program and, after two years of work, registration with a provincial engineering association as a professional engineer. For people with other educational backgrounds the academic requirements for registration may be met by passing examinations set by the provincial associations. Provincial law requires certain jobs to be held by professional engineers, although many other jobs involving petroleum engineering are held by non-licensed persons. Those considering petroleum engineering as a career should have an aptitude for chemistry and geology and should have good communications skills.

Nature of Supply

In 1986, 93% of petroleum engineers were male, although women are entering the occupation in increasing numbers. This occupation is more "middle aged" than the norm, due to the time required for schooling and the consequent relatively high average age of entry (24 to 26 years). Immigration has been only a minor source of supply of people experienced in petroleum engineering.

Market Conditions and Job Prospects

Petroleum and natural gas exploration and reserve development in Canada have recently been uneven. Throughout the 1960s and 1970s, oil and gas fields in Alberta and Saskatchewan, and a modern long-distance distribution system, were developed at a rapid pace. In addition, energy shortages and climbing petroleum prices led to the exploration and planned exploitation of less accessible reserves — offshore reserves in the Arctic and Newfoundland and reserves in tar sands. However, by the mid-1980s, conservation measures and other factors led to declining energy prices and diminished exploration and development in Canada. Employment in petroleum engineering reflected these developments, remaining stagnant over the 1984-to-1989 period. Job growth should be modest up to 1995, and in the latter half of the decade, increased investment in energy projects should bring about more rapid increases in employment. While the age structure of the occupation will not produce high levels of retirements, normal career patterns and the results of recent labour force adjustments may bring about replacement demand that is higher than usual for engineering occupations. Employment and career prospects will be best for those with strong training backgrounds and up-to-date skills.

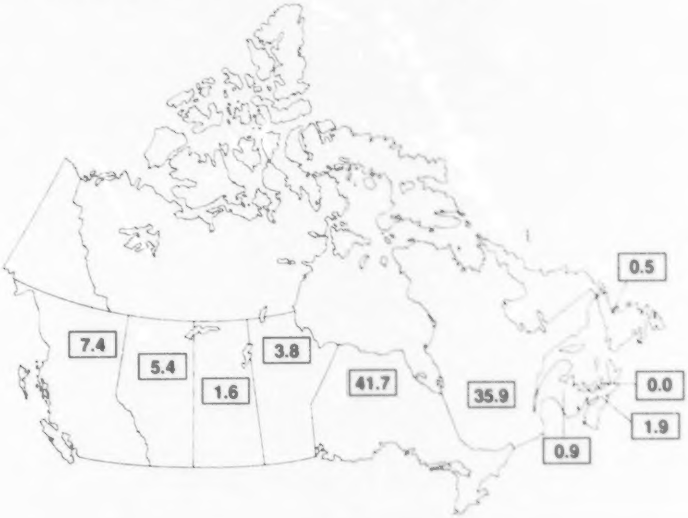
1985 Annual Earnings	$	
Lowest 10% of Workers	30,388	or less
Average Worker	53,525	
Highest 10% of Workers	81,843	or more

Source: 1986 Census

Aerospace Engineers 2155

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,405	3.4	6.6	2,708
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	5	81	14	98	2
	1986	97	3	4	80	16	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (58)
- Aircraft & Parts (52)
- Electrical Products (5)
- Miscellaneous (1)

Transport & Communications & Utilities (24)
- Air Transport (23)

Public Administration (9)
- Federal (8)
- Provincial (1)

Aerospace Engineers

2155

Job Environment

Aerospace engineers develop and maintain aircraft, missiles and spacecraft. They may specialize in structural design, navigational control, guidance systems, instrumentation, flight and stress analysis, and testing. They may also specialize in a particular kind of product — for example, commercial airliner, helicopter, military aircraft or satellite. Aerospace engineers often work in an office environment at computer work stations or in research and testing laboratories, and they sometimes have duties at production facilities. They are often involved with development and design, and often assume supervisory responsibilities as they advance in an organization.

Educational Background and Skills

Many aerospace engineers have degrees in engineering — most commonly in mechanical and aeronautical or aerospace engineering. Some have community college, technology institute or vocational school backgrounds in engineering. There are currently no accredited programs in Canada specifically in aerospace engineering, although the subject is offered as an option within many mechanical engineering or engineering science programs and at the graduate level. People graduating from accredited engineering programs may apply for registration with professional engineering associations after gaining two years experience; the academic requirement may also be met by writing examinations set by the provincial associations. Many jobs require the professional engineering status conferred by registration. Incomes and responsibility levels tend to be higher for those engineers who are fully qualified.

Nature of Supply

Most aerospace engineers are men, though women are encouraged to consider this occupation when planning a career in view of the good employment prospects and earnings potential. The workforce is slightly older than the all-occupation average, as a result of a relatively higher number of workers aged 55 and over and fewer in the 15-to-24 age group. Most people enter this occupation between the ages of 24 and 26, due to the time required for training. Immigration has played only a minor role in supplying the labour market for aerospace engineers over the last few years. The most common career progression in this field is to move from engineering duties to management occupations.

Market Conditions and Job Prospects

In Canada, employment of aerospace engineers has been strongly affected by the recent and rapid increase in commercial air transportation activity that has resulted from regulatory changes and from technical advances. Canadian participation in the exploitation of space and the modernization of Canada's military air fleet have also contributed to employment growth. Almost all aerospace engineers are employed in the manufacturing and transport industries or in government. The employment outlook for this occupation calls for growth well above the all-occupation average as the worldwide boom in air transport continues. Job openings should also result from retirements and career progression to management occupations by practicing engineers. Employment is sensitive to economic fluctuations but should be steadier than it has been in past years.

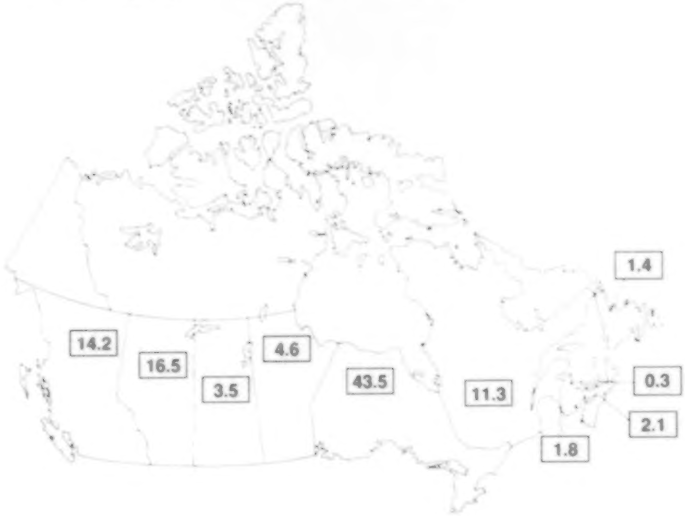
1985 Annual Earnings	$	
Lowest 10% of Workers	25,499	or less
Average Worker	38,501	
Highest 10% of Workers	54,318	or more

Source: 1986 Census

Community Planners 2157

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	7,921	4.0	3.2	4,005
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	82	18	10	79	11	98	2
	1986	75	25	7	83	10	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (50)
- Municipal (31)
- Provincial (14)
- Federal (5)

Services (34)
- Business (28)
- Miscellaneous (2)
- Education (2)

Finance & Insurance & Real Estate (5)

Community Planners

2157

Job Environment

Community planners design programs and plans for the use of land and the orderly development of urban communities. They analyze demographic, economic and social characteristics and formulate medium- and long-term objectives and plans regarding land use and infrastructure development. They confer with government authorities, civic leaders and other specialists in determining policies for land use and development. They are concerned with issues such as zoning patterns, transportation routing and capacity, public utilities, parks and recreational facilities, public and private housing, and the prevention of soil erosion and pollution. They work in an office environment.

Educational Background and Skills

The most common educational background of community planners is a university degree in planning, while a small number hold degrees in such subjects as geography, commerce, engineering, education, economics, architecture, biology, sociology, resource management and political science. About 5% have community college diplomas in the social sciences or engineering technology, but university graduates are favoured by employers. The recommended path to this occupation is an undergraduate degree in planning, or an undergraduate degree in a related discipline such as geography, urban design, architecture, or environmental sciences, followed by a graduate degree in planning. Career prospects for those with an undergraduate degree in planning are greatly improved by a graduate degree in administration or in a sub-field of planning. Membership in the Canadian Institute of Planners or a provincial planners association is an asset.

Nature of Supply

In 1986, 75% of community planners were male, but the proportion of women is increasing rapidly. The occupational workforce was slightly more middle-aged than the norm as a result of a relatively smaller population in the 15-to-24 year age group. This is due to the relatively high age of entry to the profession — usually in the mid- and late 20s. People with an educational background in planning often follow careers that lead into government administration, management and teaching.

Market Conditions and Job Prospects

Community planners are employed in greatest numbers in government (mostly at the municipal level), in the private sector as consultants and in the real estate sector. Employment in government is stable and is expected to see little growth over the 1989-to-1995 period, although there will be a demand for those with strong educational backgrounds and considerable experience. Overall employment levels will grow faster than the all-occupation average, with Central Canada and the West accounting for most new positions as these regions experience higher population growth, due to inter-provincial migration and immigration. Additional job openings will result from retirements and occupational changes. Employment of community planners is somewhat sensitive to economic conditions, partly because of the widespread employment of planners on a consulting basis.

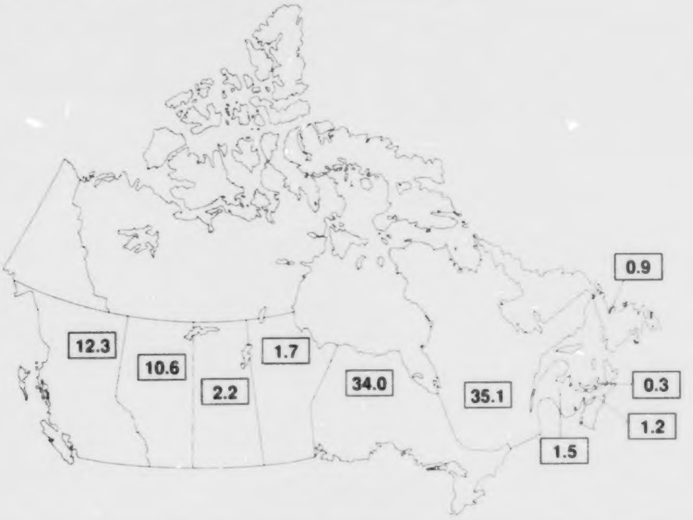
1985 Annual Earnings	$	
Lowest 10% of Workers	21,210	or less
Average Worker	38,330	
Highest 10% of Workers	53,580	or more

Source: 1986 Census

Professional Engineers 2159

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	9,091	3.4	2.2	3,890
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	96	4	7	80	13	88	12
	1986	95	5	4	80	16	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (48)
- Business (46)
- Education (1)

Manufacturing (21)
- Electrical Products (3)
- Pulp & Paper (2)
- Food & Beverages (2)

Public Administration (12)
- Provincial (5)
- Municipal (4)
- Federal (3)

Professional Engineers

2159

Job Environment

This group of occupations comprises engineering specialties which account for only a small share of the engineering workforce; examples include engineering physics, agricultural engineering, geological engineering, forestry engineering, surveying engineering, marine engineering and naval architectural engineering. As in other engineering disciplines, the work involves the practical application of scientific principles and is largely concerned with the design of machinery or processes, and the efficient management and maintenance of production processes. Practioners of these occupations usually work in offices and at production sites, such as mills, shipyards and sawmills. In some cases (e.g., forestry or geological engineers), some or all work is done in remote locations.

Educational Background and Skills

Engineers in this group usually possess university degrees in engineering disciplines or in scientific subjects. The preferred means of entering the engineering occupations is via an accredited university program. After graduation and two years of supervised work experience application may be made to a provincial engineering association for registration. The academic requirement may also be met by writing examinations set by the provincial associations. Registration allows the use of the title Professional Engineer, which is required for many jobs in engineering.

Prospective engineers should have an aptitude for mathematics and science and should have good communication skills.

Nature of Supply

The majority of engineers in this occupational grouping are male, but participation by females is growing. Women are encouraged to consider engineering when planning a career in view of the favourable employment outlook and the good earnings potential.

The workforce in this group is older than the all-occupation average. As a result of the time needed for training, most people only enter this occupation between the ages of 24 and 26. A common career pattern in engineering is to progress from "hands-on" engineering to management duties. In some engineering disciplines this transition occurs later in careers than in other, but it always results in replacement demand for engineers to carry out technical tasks, and therefore provides openings for new engineering graduates. In recent years, immigration has played a minor role in supplying trained personnel to the labour market for this occupational group.

Market Conditions and Job Prospects

Employment in this occupational group is divided between business services (i.e., consulting) at 46% of the total, manufacturing at 21%, government at 12% and various other industries. Projections of economic activity over the 1989-to-1995 period indicate that employment in this group should increase at a rate above the average for all occupations. The age structure of the workforce and the occupational switches that are common in engineering careers should create additional job openings. Employment in engineering has proven to be somewhat sensitive to economic conditions, mainly through temporary reductions in purchases of engineering consulting services during recessions.

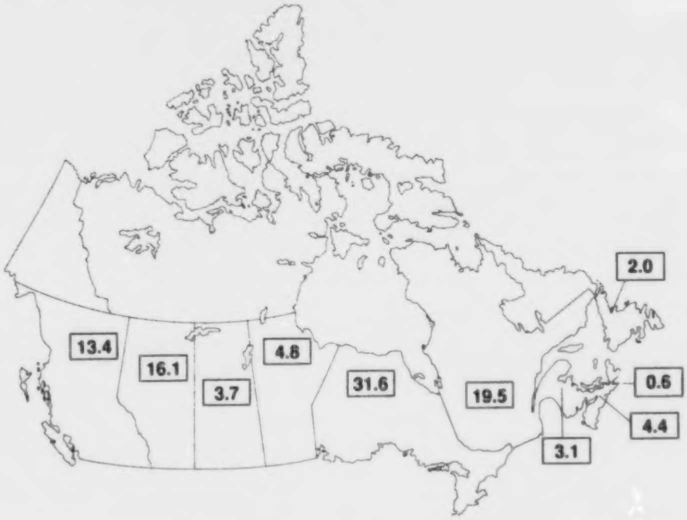
1985 Annual Earnings	$	
Lowest 10% of Workers	22,784	or less
Average Worker	40,313	
Highest 10% of Workers	61,379	or more

Source: 1986 Census

Surveyors 2161

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	15,490	-0.6	-0.1	4,704
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	95	5	37	59	4	93	7
	1986	95	5	23	72	5	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (42)
- Business (41)

Public Administration (21)
- Provincial (9)
- Municipal (8)
- Federal (4)

Construction (16)

Surveyors

2161

Job Environment

This category includes land surveyors, engineering surveyors, mine surveyors, topographical surveyors, hydrographers and geodetic surveyors. They determine and define boundaries, elevations, contours and waters for map-making, construction, mining and other purposes. They use specialized measuring devices and instruments, such as theodolites, transits, levels and computerized devices incorporating lasers.

Surveying work is precise and detailed, and technological innovations are allowing more accurate and faster measurements to be made. Computers help in analyzing measurements taken in the field and in draughting maps and charts. Electronic distance measuring devices and global positioning satellites permit accurate study of the earth in geodetic surveys.

The largest occupation in this group is land surveying. While some land surveyors work and live in urban areas, others live in camps (sometimes shared with construction crews) while working in remote construction or exploration sites. Many surveyors choose their occupation out of a desire to work in wilderness areas.

Surveyors usually are employed by construction firms, governments, or specialist engineering or surveying firms. Licensed land surveyors are often self-employed and operate their own surveying businesses.

Educational Background and Skills

All provinces require legal land surveyors to hold licenses which are obtained after completing stipulated educational programs at the technical institute or university level and a period of on-the-job training. A series of written and practical examinations must also be passed prior to licensing.

The most common educational qualifications in this occupational group are community college diplomas in surveying and civil engineering and vocational level engineering programs.

Surveyors require stamina, mobility, good eyesight and a mathematical aptitude.

Nature of Supply

The majority of surveyors are male, with women accounting for 5% of the workforce. Surveyors tend to be younger than the average for all occupations, with relatively more workers aged 15-to-24 years and fewer 55 years and older. Most people enter surveying work between the ages of 17 and 23 and many move on to other occupations by their mid-30s. Although many qualified surveyors remain attached to the occupation for the duration of their careers, for the less skilled surveying tends to be a young person's occupation. People with a community college or technology institute background often move to such activities as supervisors in architecture or engineering, draughtspersons and managers. In 1986, 92% of surveyors worked on a full-time basis.

Market Conditions and Job Prospects

New surveying techniques have led to increases in productivity, which have resulted in slower growth in employment of the less skilled in this occupational group. Consequently, the employment picture will change little over the 1989-to-1995 period, even in the face of continuing brisk construction activity. For licensed land surveyors and for survey specialists, the job situation should remain good. The Canadian Institute of Surveying and Mapping reports that the workforce of highly-skilled professional surveyors is aging and that a considerable replacement demand is expected. Replacement demand for the group as a whole is projected to be proportionally lower than the average, however.

Because much of surveying work is done in summer months, unemployment of surveyors rises in winter. The close link of surveying work to mineral exploration and construction, both of which demonstrate cyclical volatility, means that employment can decline during recessions.

Earnings

Fully qualified and licensed land surveyors often earn considerably more than their semi-skilled colleagues.

1985 Annual Earnings	$	
Lowest 10% of Workers	17,300	or less
Average Worker	28,591	
Highest 10% of Workers	42,117	or more

Source: 1986 Census

For further information, contact:

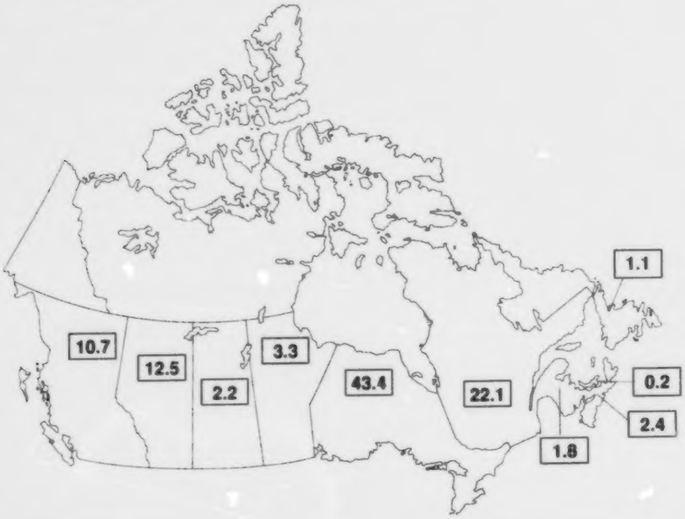
The Canadian Institute of
Surveying and Mapping
Box 5378, Station F
Ottawa, Ontario K2C 3J1
(613) 224-9851

Draughting Occupations

2163

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	33,146	-2.9	-2.5	4,904
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	82	18	26	68	6	94	6
	1986	82	18	17	76	7	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (41)
- Business (38)
- Education (2)

Manufacturing (26)
- Machinery (5)
- Electrical Products (4)
- Metal Fabricating (4)

Public Administration (12)
- Provincial (4)
- Municipal (4)
- Federal (4)

Draughting Occupations

2163

Job Environment

A draughtsperson prepares detailed drawings from sketches and specifications. Draughtspersons produce maps, charts, plans, graphical presentations and drawings of manufactured products, buildings and other structures as specified by technical experts such as architects and engineers. Draughtspersons work at specialized computer work stations, usually as a member of a design team. The use of computer-assisted-design techniques is rapidly replacing traditional manual draughting methods. Draughting is done in an office environment, commonly following a 35-40 hour work week.

Educational Background and Skills

The ability to visualize well in three dimensions, as well as patience, discipline and concentration are assets in this occupation. Although draughtspersons often work on large staffs of up to several hundred, they sometimes work independently. Eight to 10 years of draughting experience are usually required for classification as a senior draughtsperson.

The most common educational background among people in this occupation is community college or trade/vocational training in draughting. Training in engineering technologies at the college level can also lead to this occupation.

Nature of Supply

In 1986, females represented slightly over one of every six draughtspersons. The proportion of people in the 25-to-54 age bracket in this occupation is slightly higher that average, perhaps due in part to reduced job opportunities during the early 1980s for those just entering the field. Employment conditions since then have improved for new entrants, most of whom are between 19 and 24 years old. In 1986, 92% of draughtspersons worked on a full-time basis.

Market Conditions and Job Prospects

Most draughtspersons are employed in the business services, manufacturing and construction sectors, and therefore demand will depend on the level of activity in these industries. The sensitivity of the manufacturing and construction industries to changing business conditions leads to job losses during economic slowdowns.

The processes of conceiving and designing new products have been changed dramatically by computer-aided-design methods. Computerized systems allow three-dimensional visualization and facilitate the design of complex shapes and machine assemblies, prompting a trend towards combining automated manufacturing and design functions. These changes have eliminated many repetitive tasks and may demand better design skills, more sophisticated graphics and greater design accuracy of the draughtsperson. New applications are increasing opportunities in such areas as landscaping, interior design and fashion design.

These changes in technology are causing fundamental shifts in the labour market for draughtspersons. The volume of work that can be produced by a single draughtsperson has greatly increased through the use of new design techniques, and this may result in lower employment levels despite a growing demand for draughting services. The employment outlook is better, however, for people with training backgrounds in the newer draughting technologies and in computer-aided-design methods.

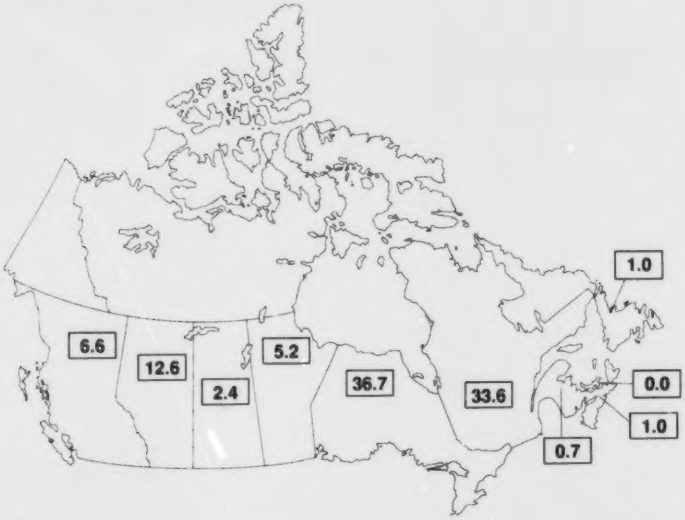
1985 Annual Earnings	$	
Lowest 10% of Workers	16,599	or less
Average Worker	27,519	
Highest 10% of Workers	39,213	or more

Source: 1986 Census

Architectural Technologists and Technicians 2164

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,705	4.3	3.6	1,000
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	86	14	27	67	6	96	4
	1986	80	20	28	65	7	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (64)
- Business (57)
- Education (5)
- Accommodation & Food (1)

Public Administration (13)
- Federal (6)
- Provincial (3)
- Municipal (3)

Manufacturing (10)
- Metal Fabricating (3)
- Wood (2)

Architectural Technologists and Technicians 2164

Job Environment

Architectural technologists and technicians work with architects and civil engineers engaged in building design. They conduct research, and prepare drawings, architectural models, specifications and contracts relating to construction projects. Architectural technicians and technologists are employed by architectural and construction firms, governments and large firms which supervise their own building activities. They often supervise construction projects and co-ordinate and inspect work done by others.

This group includes technologists and technicians of architectural design and in building.

Educational Background and Skills

Most people in this occupation possess a post-secondary degree or diploma. The most common educational qualification in 1986 was a community college diploma in architectural design and draughting (39%); some 8% had a university degree in architecture. Professional associations offer certification to those with appropriate education and experience.

Nature of Supply

Approximately one of every five architectural technologists and technicians is female, and this ratio is increasing rapidly. The workforce in this occupation is growing and consequently is younger than the all-occupation average, with a smaller proportion of its numbers over 55 and a larger proportion under 25. The most common age of entry to the occupation is between the ages of 20 and 23. In 1986, 92% of architectural technologists and technicians worked on a full-time basis.

Market Conditions and Job Prospects

Recent projections predict a high level of construction activity through the 1990s, especially in Central Canada where the expansion and modernization of manufacturing industries is expected to remain strong over the next few years. This bodes well for employment opportunities for architectural technologists and technicians, which are expected to grow faster than the occupational average over the 1989-to-1995 period. These prospects will only be slightly dampened by the fact that the relative youth of this workforce will translate into comparatively few openings resulting from retirements and career changes.

Most architectural technologists and technicians find employment in business services and various levels of government, and despite the seasonal nature of construction activity, employment in this occupational group should be fairly stable over the year. Employment varies with the business cycle.

1985 Annual Earnings	$	
Lowest 10% of Workers	15,643	or less
Average Worker	28,015	
Highest 10% of Workers	40,480	or more

Source: 1986 Census

For further information, contact:

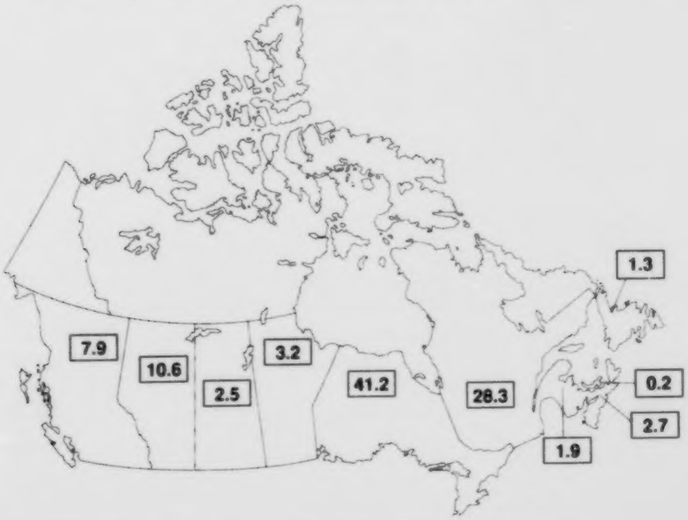
Canadian Council of Technicians
and Technologists
Suite 807, 880 Wellington Street
Ottawa, Ontario K1R 6K7
(613) 238-8123

Engineering Technologists and Technicians

2165

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	51,709	1.1	1.8	23,033
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	92	8	29	65	6	96	4
	1986	90	10	22	72	6	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (39)
- Electrical Products (11)
- Machinery (5)
- Motor Vehicles & Trailers & Parts (3)

Services (18)
- Business (12)
- Education (3)
- Recreation (1)

Transport & Communications & Utilities (16)
- Electric Power (7)
- Telephone & Telegraph (4)

Engineering Technologists and Technicians

2165

Job Environment

Engineering technologists and technicians play a vital role in the design and operation of most aspects of production. Technologists are distinguished from technicians by the level and nature of their training. Professional associations in each province maintain certification programs for both technicians and technologists.

Engineering technicians and technologists may specialize in any of the engineering disciplines, the most important of which are: civil engineering, which is concerned with such areas as structural design, construction and maintenance, transport and water treatment; electrical and electronics engineering, which covers electrical machinery design, industrial control and computer hardware; chemical engineering, which is concerned with food processing, pollution control, industrial chemistry, petrochemicals and pharmaceuticals; industrial engineering, which is involved with quality control, energy systems, fire protection and computer applications; mechanical engineering, which deals with manufacturing, heating, ventilation, air conditioning and refrigeration, and aerospace; and mineral resources and metallurgical engineering, which involves mineral extraction techniques, mining and welding technology.

Technologists perform a variety of functions including measurement and analysis, design, supervision of field installation and quality control. Technicians do similar work, but usually at a less complex level and with less responsibility.

Educational Background and Skills

In 1986, roughly one third of engineering technologists and technicians held a community college certificate or diploma, with the rest usually educated at technology institute level. Certification occurs after two or three years of work experience, depending on provincial requirements. Most people in this field studied electronic, civil or electrical engineering technology, while a significant number possess a trades electrical background.

Nature of Supply

While most engineering technicians and technologists are male, the number of females in the occupation is growing, having reached 10% in 1986. The occupational workforce is younger than the all-occupation average, with a slightly greater proportion of workers in the 15-to-24 year age group and a substantially smaller proportion in the 55-plus age bracket. Most people initially entering this occupation are aged between 19 and 24 years. Immigration has been an important source of trained personnel in the past, and this is expected to continue. In 1986, 94% of people in this field were working on a full-time basis.

Some experienced technologists are employed as engineers. Others move to management or sales after gaining technical experience.

Market Conditions and Job Prospects

According to projections of economic activity, labour market conditions for engineering technicians and technologists appear good. Nationally, employment in this group is expected to increase at a rate greater than the average. This is partly due to the ongoing expansion and modernization of manufacturing capacity in Central Canada, which is projected to continue through the early 1990s, and to a resurgence of investment in resource extraction facilities expected in the mid-1990s. Manufacturing, business services and utilities account for the bulk of employment in this occupation.

The outlook for job openings will be limited by a modest level of replacement demand, projected to be lower than that for the all-occupation average. Because of the relative youth of the occupational workforce, fewer retirements and career changes are expected.

Work in this group that is related to construction activity is sometimes seasonal. Employment also shows some sensitivity to overall economic conditions.

For more current salary data or more detailed information on a career as a technician or technologist, contact the Canadian Council of Technicians and Technologists at (613) 238-8123 or by fax at (613) 238-8822.

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**18,392**	**or less**
Average Worker	**31,306**	
Highest 10% of Workers	**44,404**	**or more**

Source: 1986 Census

For further information, contact:

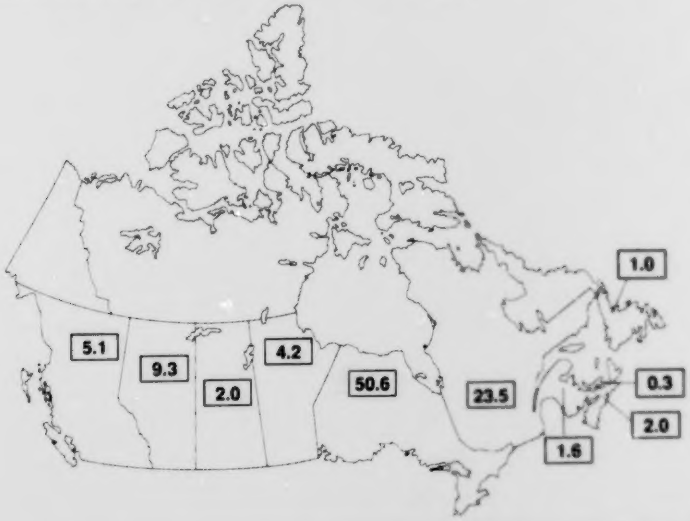
Canadian Council of Technicians
and Technologists
Suite 807, 880 Wellington Street
Ottawa, Ontario K1R 6K7
(613) 238-8123

Mathematicians, Statisticians and Actuaries

2181

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,276	1.7	2.0	3,044
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	70	30	10	81	9	91	9
	1986	67	33	8	84	8	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (31)
- Federal (18)
- Provincial (10)
- Municipal (3)

Services (28)
- Business (18)
- Education (6)
- Miscellaneous (2)

Finance & Insurance & Real Estate (18)

Mathematicians, Statisticians and Actuaries

2181

Job Environment

This occupational category includes actuaries, demographers, statisticians, sampling experts and survey statisticians.

Mathematicians work in either pure or applied fields: pure mathematicians are concerned with mathematics as an abstract science and usually teach in universities after obtaining a PhD; applied mathematicians work in industry and business in such areas as business management, laboratory research, product design or with computers. Statistics, a special branch of mathematics, involves the collection, arrangement, analysis, interpretation and presentation of numerical data.

Actuaries are mainly employed in the insurance industry. They design insurance and pension plans based on such statistical data as rates of sickness, injury, mortality, unemployment, accident, disability and retirement. They set premium rates and policy contract provisions for each type of insurance, according to social and demographic statistics.

Educational Background and Skills

Most mathematicians, statisticians and actuaries enter the profession with an undergraduate degree in mathematics, commerce, geography or economics. Other qualifications, such as a post-graduate degree or actuarial exams may also be required, depending on the industry or employer involved.

Nature of Supply

Besides those entering these occupations from the undergraduate level with specializations in mathematics, commerce, or economics, individuals re-entering the labour force after some period of separation are a significant source of supply for this occupation; immigrants are a minor source of supply.

Although historically these occupations have been predominantly held by men, the number of women has increased since 1981. Geographically, most mathematicians, statisticians and actuaries are employed in Ontario (51%) and Quebec (24%). The average age (36) has remained fairly constant since 1971, with the majority of individuals entering these occupations between the ages of 25 and 29, and beginning to leave between 35 and 39 years of age, for an average career span of 10 years. With experience, progression into supervisory, administrative or managerial positions is possible.

Market Conditions and Job Prospects

Because about 75% of these workers are concentrated in public adminstration, finance and business services, employment is relatively stable. The slightly-above-average rate of employment growth was due to high growth in the finance sector balanced by low growth in the government sector.

Over the 1989-to-1995 period, employment is expected to continue to grow at a rate slightly-above average, the result of average growth in government balanced by continued but weakened growth in the finance and business service sectors of the economy. The business services sector is expected to offer better prospects because of increased use of subcontractors and general economic growth. Forecasting is a major source of growth in this field, and future prospects of the occupation in general will be improved by continued development of cheaper computers and improved software.

Because of demographic changes, prospects are better for actuaries working in insurance and finance: as the age of the working population increases accompanied by higher incomes, more people will be purchasing life, property and casualty insurance.

Teaching positions may exist in colleges and universities for those PhDs in mathematics or statistics with a knowledge of computer systems. Operations research is a new and expanding area which may lead to future employment opportunities.

In general, economic conditions forecast for the 1989-to-1995 period suggest that employment in this occupation will not only grow faster than average, but also faster than it did between 1981 and 1989. Approximately 3,000 jobs should be created over this period, with slightly more than two-thirds arising from replacement for employees who retire, die or leave.

1985 Annual Earnings	$	
Lowest 10% of Workers	21,616	or less
Average Worker	37,681	
Highest 10% of Workers	55,397	or more

Source: 1986 Census

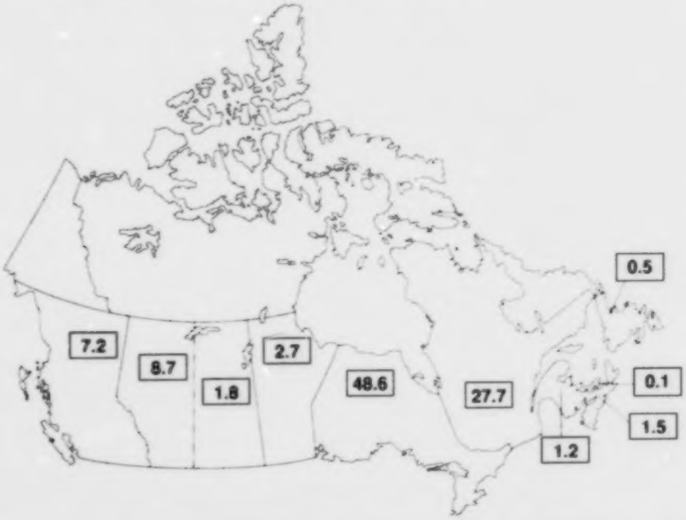
For further information, contact:

Canadian Institute of Actuaries
Suite 1040, 360 Albert Street
Ottawa, Ontario K1R 7X7
(613) 236-8196

Systems Analysts, Computer Programmers and Related Occupations 2183

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	126,178	9.8	6.0	103,836
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	72	28	23	75	2	94	6
	1986	69	31	20	78	2	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (36)	**Manufacturing** (16)	**Public Administration** (14)
- Business (27)	- Machinery (3)	- Federal (6)
- Education (6)	- Electrical Products (3)	- Provincial (6)
- Hospital (1)	- Food & Beverages (1)	- Municipal (2)

Systems Analysts, Computer Programmers and Related Occupations

2183

Job Environment

This occupational group includes systems analysts, software systems analysts, computer programmers and methods analysts. Typically, these people work in an office with extensive computerized operations and networks. Systems analysts design and implement computer systems, and computer programmers write and maintain computer programs. Senior analysts often assume leadership roles for systems projects. Careers in this field may lead to management positions.

Educational Background and Skills

The major channels of entry into these occupations are community colleges and universities. Formal licensing or accreditation for computer programmers or systems analysts does not exist, although the Certificate of Data Processing (CDP) is now gaining increased recognition. Trade/vocational schools as training sources are on the wane.

Nature of Supply

The majority of people in these occupations have a university degree in computer science, commerce or mathematics. Most community college and trade/vocational graduates have studied computer science. Other fields with strong mathematical content, such as electrical engineering, commerce and mathematics, also supply candidates for this group.

The supply of programmers has grown rapidly to meet demand. More women have entered the field recently, with their share of total employment rising from 28% to 31% between 1981 and 1986.

There is a continued need for new entrants into this occupation as many people leave the field for positions in management, sales management and teaching.

Market Conditions and Job Prospects

Employment growth for systems analysts, computer programmers and related occupations was well above the average for all occupations over the 1981-to-1989 period. The high growth was a result of the rapid computerization of the economy and led to a very low level of unemployment in this group.

Between 1989 and 1995 employment is expected to grow at a rate well above average, largely as a result of the increasing computerization of the economy. Employment in this occupational group is mildly sensitive to business conditions, while seasonal variation is non-existent. Employment of systems analysts, software analysts and programmers is dispersed throughout the economy, with some concentration in the business services, manufacturing and public administration sectors. Changes in technology have generally worked in favour of programmers and systems analysts. The availability of cheaper computing power has permitted the implementation of more specialized and user-friendly applications, and the information explosion has led to new openings for data-base managers, information systems engineers, programmers and information scientists. The shift from larger computers to smaller ones has led to a change in the skill requirements within the occupation.

In general, economic conditions over the 1989-to-1995 period will allow employment in this occupation to grow faster than average but not as fast as in the 1980s. The number of openings in this period should approximate 100,000, with slightly more than one-half arising from employees leaving the occupation for a variety of reasons.

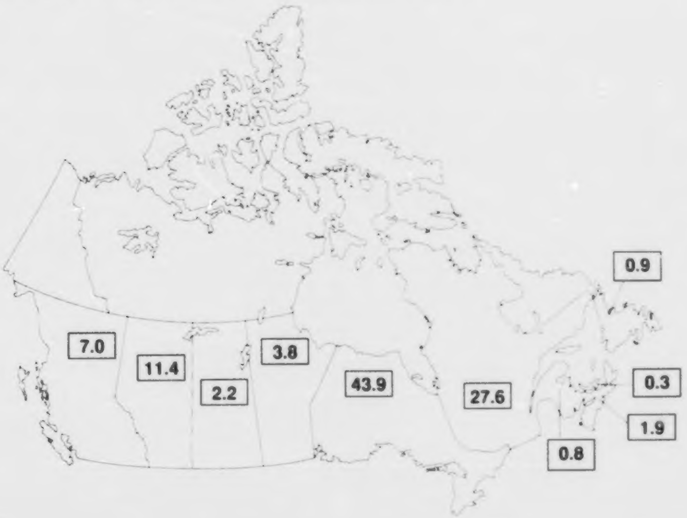
1985 Annual Earnings	$	
Lowest 10% of Workers	19,364	or less
Average Worker	32,753	
Highest 10% of Workers	46,554	or more

Source: 1986 Census

Economists 2311

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	16,138	3.9	2.1	10,520
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	80	20	6	84	10	93	7
	1986	73	27	5	87	8	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (34)
- Provincial (16)
- Federal (15)
- Municipal (3)

Services (26)
- Business (20)
- Miscellaneous (2)
- Education (2)

Manufacturing (12)
- Chemicals & Chemical Products (2)
- Electrical Products (2)
- Food & Beverages (1)

Economists

2311

Job Environment

Economists may specialize in any of a number of areas such as agriculture, fiscal policy, energy or labour. Some economists (for example, university professors) are primarily theoreticians interested in explaining economic trends. Most are concerned with the application of economic policy in a particular area such as health or education. Generally, activities include research, analysis, and the preparation of estimates, forecasts and reports. A business economist advises industrial firms and governmental agencies on issues related to operating efficiency, marketing methods and fiscal policy. Those who work for banks may analyze current business trends and develop market forecasts for money and credit. An investment economist may focus on predicting the effects of different social and political developments on industrial and securities markets.

Educational Background and Skills

To be employed as an economist requires a three- or four-year bachelor's degree with a major in economics. However, post-graduate study is becoming increasingly important, and to teach economics at the university level candidates must hold a PhD in a specialized area of the discipline.

Nature of Supply

Most persons entering this occupational work force do so from the formal education system, although re-entrants from the household sector are also significant in numbers.

At the time of the 1981 census, 20% of economists were female. Albeit still small, this proportion had risen to 27% by 1986. Most people enter this profession between the ages of 25 and 34 years and usually remain until retirement at age 60 or 65, suggesting a career length of approximately 30 or 35 years with the exception of those who move on to such other occupations as management. In 1986, the average age of the members of the occupation was 36. Most employment opportunities in this field are located in large urban centres.

Market Conditions and Job Prospects

Growth in employment was substantially better than average over the 1981-to-1989 period. Changing economic conditions affect those in manufacturing and resources more than economists in other sectors of the economy. A substantial portion of employment is concentrated in the public administration and finance sectors of the economy resulting in relative stability. Growth in demand for economists also provides a buffer against economic fluctuations.

Since the early 1980s, employment growth has been above average, with low growth in public administration more than offset by high growth in other parts of the economy.

Over the 1989-to-1995 period, employment growth is expected to continue at a rate slightly above average, largely the result of general growth-average in government hiring, and increased in business services and finance.

Entry-level positions are available for new graduates and experienced economists may advance to managerial positions.

Technology has enhanced the work of this profession because computer systems and software packages now perform mathematical calculations and store and manipulate large amounts of data, leaving economists to spend more time analyzing, preparing and writing reports. Candidates with quantitative backgrounds and a sound knowledge of electronic data-processing techniques will have a definite edge in the job market.

Economic conditions over the 1989-to-1995 period are expected to produce employment that will grow slightly faster than average although not as fast as in the last decade. Approximately 10,000 jobs should be created, with over four-fifths a result of replacements as employees retire, die or leave the occupation.

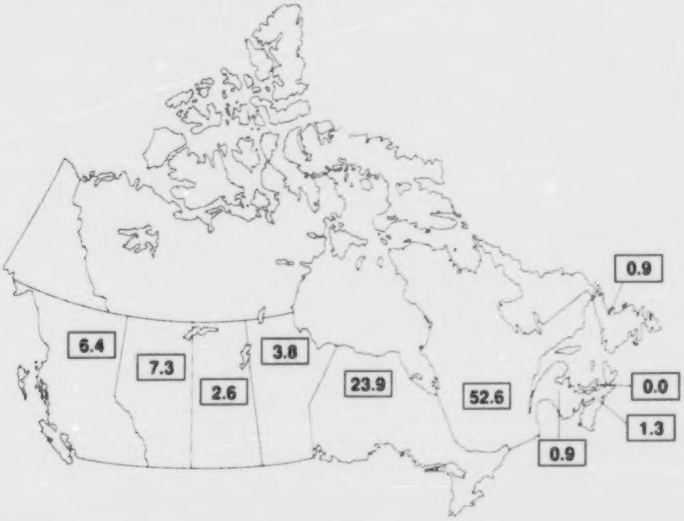
1985 Annual Earnings	**$**	
Lowest 10% of Workers	**21,814**	**or less**
Average Worker	**39,427**	
Highest 10% of Workers	**58,663**	**or more**

Source: 1986 Census

Sociologists, Anthropologists and Related Social Scientists 2313

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,251	0.2	2.2	821
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	62	38	14	82	4	88	12
	1986	57	43	9	87	4	80	20
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (55)
- Education (21)
- Business (14)
- Health & Welfare-Non-Hospital (10)

Public Administration (40)
- Provincial (19)
- Federal (14)
- Municipal (6)

Transport & Communications & Utilities (3)

Sociologists, Anthropologists and Related Social Scientists 2313

Job Environment

This occupational classification includes anthropologists, archaeologists, criminologists, ethnologists and sociologists, all of whom study human behaviour.

Sociologists examine such social groups as families, communities, clubs and other organizations in modern society. They study the characteristics of these groups, trace their origin and growth, and analyze the influence of groups on an individual's attitudes and behaviours. Sociologists are also interested in the impact of individuals on the groups to which they belong.

Anthropologists and archaeologists look at the origin and development of human societies and cultures, by investigating primitive societies and examining the archaeological remains of ancient ones. Other related fields include urban sociology, industrial sociology, criminology, educational sociology, medical sociology, race and ethnic relations, religion, women's studies and sociobiology.

Educational Background and Skills

A master's degree in sociology is the usual requirement for employment, and some training in statistics at the undergraduate level is also desirable. Advanced positions in teaching or research are usually filled by individuals holding a doctorate degree. For a career as an anthropologist educational preparation begins at the undergraduate level, and must include a specialization within the field. Other relevant areas of study are language, art and architecture, and history.

Nature of Supply

The educational system is the main route of entry for these occupations, although a significant number of people come from the household sector. Immigrants contribute a high proportion of this labour force, although it has diminished in recent years.

Most people begin to work between the ages of 25 and 30 years, although some enter both before and after these ages. The average age of persons in these occupations rose to 36 in 1986, six years older than in 1981, part of a general trend towards higher education before seeking employment. In 1986, 43% of this workforce was female, a rise of only 5% over five years.

Market Conditions and Job Prospects

Employment growth was considerably weaker than for all occupations over the 1981-to-1989 period, with declines of the 1981-to-1984 period only partially offset by gains between 1984 and 1989. Unemployment in the field fell steadily in the latter part of the decade. Growth was influenced by government constraints.

Over the 1989-to-1995 period, employment is expected to grow at a rate slightly above the average, with increasing demand for social services likely to increase the number of new jobs. Employment in this field is not particularly susceptible to swings in business cycles, but is sensitive to government spending. Sociologists frequently advance to managerial and administrative positions with relatively few remaining sociologists for their whole career. The result of this progression is better-than-average openings for new graduates.

Employment opportunities are expected to be better for sociologists with quantitative backgrounds and training. The continuing need for social research and analysis, for administration of existing social programs and for the establishment of new programs will ensure lasting demand for this expertise.

Economic conditions over the 1989-to-1995 period should mean that employment will grow not only faster than average but also faster than it did between 1981 and 1989. Approximately 800 new jobs will be created, with three-quarters resulting from replacements for employees who retire, die or leave the occupation for other reasons.

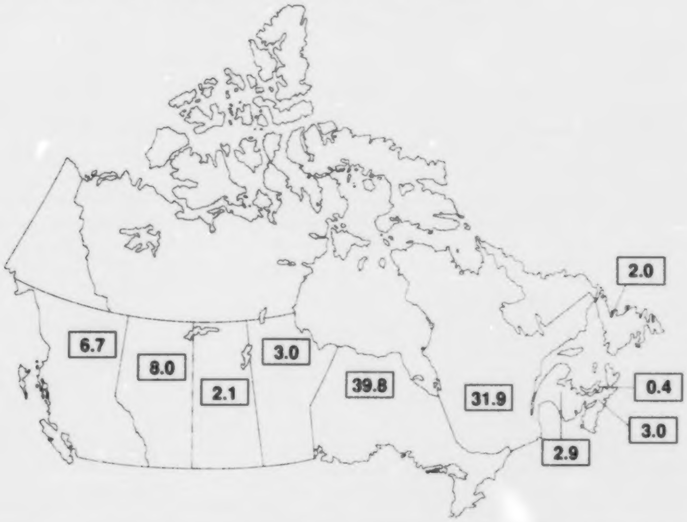
1985 Annual Earnings	**$**	
Lowest 10% of Workers	**19,070**	**or less**
Average Worker	**31,950**	
Highest 10% of Workers	**46,909**	**or more**

Source: 1986 Census

Psychologists 2315

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	13,174	6.0	3.4	10,055
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	49	51	5	89	6	84	16
	1986	42	58	5	90	5	78	22
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (87)
- Health and Welfare - Non-Hospital (38)
- Education (30)
- Hospital (18)

Public Administration (12)
- Provincial (8)
- Federal (2)
- Municipal (2)

Psychologists

2315

Job Environment

This group includes child psychologists, educational psychologists, industrial psychologists, mental health counsellors, neuropsychologists, rehabilitation psychologists and research psychologists.

These professionals study individual and group behaviour of humans as well as animals. Areas of study include the mental processes of thinking, learning and remembering, decision-making, drives and personality. Tests, questionnaires and controlled experiments are used to obtain data, test hypotheses and develop theories. Research psychologists carry out experiments on both humans and animals.

In colleges and universities, psychologists combine teaching with research and administrative duties. In applied fields, they assess psychological disorders, conduct training programs, counsel, develop intervention programs, evaluate effectiveness of various programs, provide clinical psychological or therapeutic services, and sometimes act as consultants for industry and government.

Educational Background and Skills

A career as a practicing psychologist can require up to 10 years of formal preparation beyond high school. Secondary studies in mathematics and the natural sciences are definite assets. Career-specific training usually begins with a three- to four-year bachelor's degree with a psychology major, followed by one or two years of study leading to a master's degree and another two years to earn a doctorate (PhD). Clinical and counselling psychologists require a further period of practical training and internship. Although a master's degree is the minimum acceptable education requirement, a PhD in psychology is usually required for employment and is necessary for licensing. Students interested in this field should check with their provincial psychological association or the Canadian Psychological Association for information regarding current legal requirements in the province where they expect to practice.

Nature of Supply

The post-secondary educational system is the primary source of psychologists. Other sources, such as the household sector, immigration, the military and movements from other occupations, provide a few more candidates.

In 1986, 58% of Canada's psychologists were female, a noticeable increase over five years earlier. The average age was 37, marginally higher than that in 1981, probably as a result of higher levels of education over 1981 averages. Most people enter this field between the ages of 25 and 34 years, with retirements not becoming significant until age 60, suggesting a career of at least 25 years.

Market Conditions and Job Prospects

Employment grew substantially more than the average for all occupations over the 1981-to-1989 period, not necessarily because of robust growth in the sectors that employ psychologists, but rather because of increased demand for their services.

This recent and rapid growth is reflected by high job vacancies and low unemployment. Increased demand has also led to moderate numbers of immigrants entering the occupation.

Over the 1989-to-1995 period employment is expected to continue at a rate well above average, due to average growth in the economy combined with increasing demand for psychologists. While not as dramatic as during the 1980s, this increase is expected to continue as new opportunities arise.

Although continuing social and economic changes increase demand, growth may be subdued in some areas as current provincial expenditures in health services are unlikely to rise dramatically. Psychologists with a clinical specialization should enjoy good job prospects, and some will find job openings in correctional centres.

Projected economic conditions and demand for psychologists over the 1989-to-1995 period suggest that employment will grow faster than average but not as fast at between 1981 and 1989. Approximately 10,000 jobs will be created, with more than two-thirds resulting from retirements, deaths and replacements for those vacating their jobs.

1985 Annual Earnings	$	
Lowest 10% of Workers	17,866	or less
Average Worker	32,858	
Highest 10% of Workers	47,651	or more

Source: 1986 Census

For further information, contact:

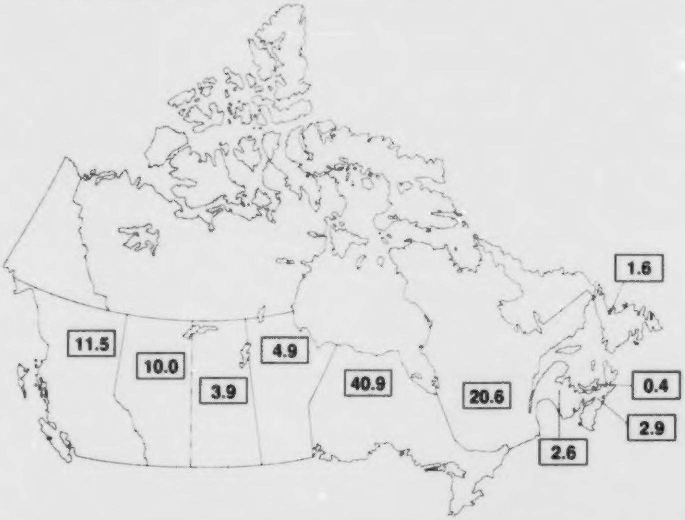
Canadian Medical Association
Department of Health Policy and Economics
P.O. Box 8650, 1867 Alta Vista Drive
Ottawa, Ontario K1G 0G8
(613) 731-9331

Social Workers

2331

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	48,591	5.6	2.7	34,282
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	38	62	6	86	8	87	13
	1986	33	67	9	84	7	83	17
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (63)
- Health and Welfare - Non-Hospital (48)
- Hospital (8)
- Education (3)

Public Administration (36)
- Provincial (23)
- Municipal (8)
- Federal (5)

Social Workers

2331

Job Environment

Social work professionals are employed in a range of community settings, including health centres, hospitals, group homes, correctional institutions, school boards and social service agencies. Their clients include troubled youth, the poor, the unemployed, victims of crime, prisoners, the sick, disabled people, and families. Social workers interview clients individually or in groups to assess the nature and severity of their problems and to determine the type of services required. Besides counselling, the professional social worker may advocate on behalf of the client for needed services, particularly in communities where the health and social services have limited mandates. In some cases, social workers may initiate legal action, such as petitioning to obtain crown wardship on behalf of a child. Social workers are often members of teams of related professionals working with a particular client program.

Social workers have formal training in counselling and social policies and share a commitment to a professional code of ethics. Their approach to social reform and intervention is based on a belief that the social conditions of humanity can be bettered.

Educational Background and Skills

The minimum educational requirement for employment as a social worker is graduation from a two-year community college program in social work. However, employment opportunities are diminishing for new graduates of these programs, who are usually limited to front-line worker positions. Students interested in a career in social work should hold at least a Bachelor of Social Work degree, requiring three to five years of university study. Advanced or administrative positions may require Master of Social Work credentials. Previous experience in this area, such as volunteer activity, is a strong asset. Expertise gained through on-the-job training is important for career advancement. Although not mandatory, registration with a provincial professional association is possible for social workers.

Nature of Supply

Most individuals enter this profession from the formal education system. Among those entrants, 60% hold an undergraduate university degree, primarily in social work, but also in such related fields as sociology and psychology; 27% are graduates of community college programs in social work or education and counselling; and 8% hold master's degrees, primarily in social work, sociology or education.

In 1986, 67% of all social workers in Canada were women. This is a moderate increase over the percentage of five years earlier. Most people enter this occupation between the ages of 20 and 29, and do not begin to leave in large numbers until around the age of 55, for an approximate career length of at least 25 years.

Market Conditions and Job Prospects

Employment growth among social workers was faster than the average for all occupations throughout the 1980s. Although the annual rate of growth is expected to decline somewhat in the years leading to 1995, it should continue to surpass the all-occupation average. During this six-year period, some 34,000 new social workers will be demanded by the Canadian labour market. One in every four of these will be needed to fill a new employment position.

Close to 50% of all social workers work in health service agencies, with a further 23% finding employment in provincial public administration. Hospitals, federal and municipal governments and the education system account for most of the remaining employment opportunities. Although occupations in social work are not substantially affected by economic fluctuations, they are sensitive to provincial expenditures in health services and federal expenditures on social programs. Currently, unemployment among social workers is marginally below the all-occupation average.

The very nature of social work — to help individuals, groups and families adjust and cope with problems — means the demand for social workers will increase as the total population increases.

Earnings

In most provinces, social workers in government institutions are paid better than those in the private or voluntary sectors. Annual salaries for social workers employed by the federal government in 1989 ranged from $24,235 to $36,526 for entry-level positions. Employees in the middle range earned from $34,216 to $45,189, and senior level workers earned from $50,855 to $60,299 (Pay Research Bureau, September 1, 1989). Entry-level 1989 salaries for social workers employed outside the federal public service ranged from $26,374 to $37,003 per annum, with an average of $30,961. Senior level salaries ranged from $49,725 to $65,205 per year (Pay Research Bureau, September 15, 1989).

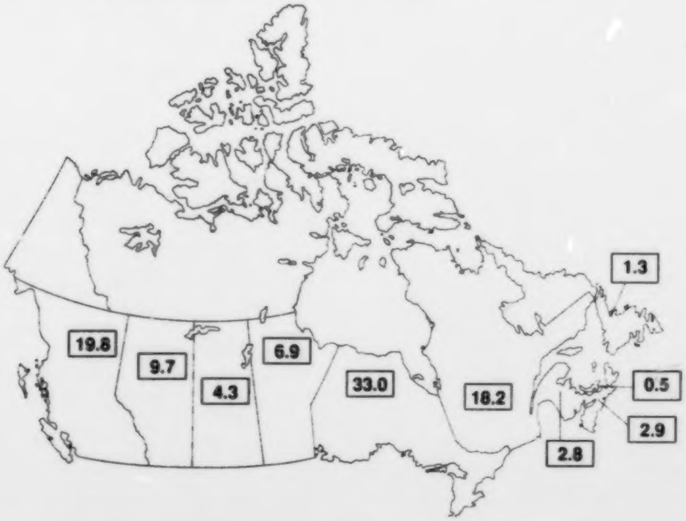
1985 Annual Earnings	$	
Lowest 10% of Workers	16,871	or less
Average Worker	26,885	
Highest 10% of Workers	37,224	or more

Source: 1986 Census

Occupations in Welfare and Community Services 2333

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	63,857	6.4	3.4	48,686
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	31	69	36	54	10	73	27
	1986	26	74	24	66	10	67	33
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (75)
- Health and Welfare - Non-Hospital (49)
- Miscellaneous (9)
- Education (4)

Public Administration (23)
- Municipal (13)
- Provincial (8)
- Federal (2)

Occupations in Welfare and Community Services

2333

Job Environment

This is a very broad occupational group. Its numbers include people concerned with providing social services to individuals, families and groups, and with providing assistance to professional social workers; organizing and supervising social, recreational and cultural activities in youth or family camps, community centres, playgrounds and other settings; and caring for residents of halfway houses, group homes and residential treatment facilities. Some typical job titles are child-care worker, visiting homemaker, camp director or counsellor, and mental-retardation worker.

Child-care workers counsel emotionally disturbed or mentally disabled children or youths. Visiting homemakers care for householders and their dependants during periods of incapacitation, convalescence or family disruption. Camp directors direct and co-ordinate the activities of children's, youth or family camps with the support of camp counsellors and other staff. Mental-retardation workers instruct, counsel and care for mentally retarded children and adults in residential institutions and sheltered workshops.

Educational Background and Skills

The preparatory requirements for employment in this occupation vary with the position. In general, however, candidates must complete a two- or three-year community college program in an area such as recreation leadership, social services or child care. Such a program usually combines classroom work with practical experience. A university degree is usually required for employment in supervisory or administrative positions. Workers with graduate degrees in social-service-related areas often start out in a worker position to gain experience in casework and program delivery. Volunteer programs enable young people to gain marketable managerial and leadership skills.

Nature of Supply

Most people enter this field from the post-secondary education system. Among this number, the largest group (57%) complete an undergraduate program of study, primarily in related fields such as physical education, social work, criminology and psychology. Community college graduates (accounting for 31% of the total) have backgrounds in related fields, such as social services, education counselling and recreation and sports. Trade/vocational graduates (9%) and individuals holding advanced university degrees (3%) are also primarily trained in the social sciences.

Most people enter these professions between the ages of 18 and 22. A small number of people leave this occupation almost immediately after entering, perhaps reflecting an individual response to the pressures of employment in this profession. In general, however, retirements do not begin until age 60, implying a career span of approximately 40 years. In 1980 almost 75% of welfare and community service workers were women, a significant increase over the proportion of five years earlier.

Market Conditions and Job Prospects

During the 1970s and 1980s, employment growth in these occupations was significantly above the all-occupation average. Although the rate of growth is expected to moderate, it will remain above average until at least 1995. During this period, approximately 49,000 job openings will become available in this field. Only 30% of these will be the consequence of attrition, while the remainder will be new positions created by growing demand. The need for community welfare service workers will grow as Canada's population ages and community-based rehabilitation services receive increasing emphasis, although government restraint in the areas of social programs and health services will be a limiting factor.

Current employment prospects in this occupation are moderately worse than those for the Canadian labour force as a whole, although the rate of unemployment has been declining in recent years. Most employment opportunities are found in the service sector, primarily in non-institutional health services. A significant number of jobs can be found with local government agencies.

Earnings

Salaries and wage levels can vary significantly, depending on the type of employment, province, work setting and level of education and experience. In 1989, social services officers employed outside the federal public service earned between $23,765 and $31,513 per annum, with average annual earnings of $28,390 (Pay Research Bureau, August 15, 1989).

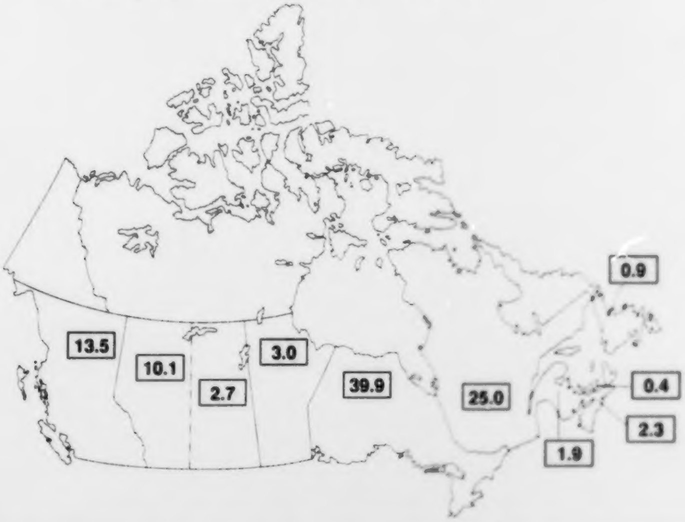
1985 Annual Earnings	$	
Lowest 10% of Workers	9,345	or less
Average Worker	21,126	
Highest 10% of Workers	34,236	or more

Source: 1986 Census

Lawyers and Notaries 2343

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	43,274	3.3	2.4	17,919
All Occupations	12,434,282	1.5	1.5	8,062,668

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	85	15	3	88	9	96	4
	1986	79	21	2	88	10	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (85)
- Business (83)

Public Administration (11)
- Provincial (7)
- Federal (3)
- Municipal (1)

Finance & Insurance & Real Estate (2)

Lawyers and Notaries

2343

Job Environment

Lawyers (and in Quebec, notaries) interpret laws and offer counsel and advice to business and to individuals. For lawyers who specialize in corporate law (such as stock exchange regulations and corporate income tax laws) and commercial law (import-export regulations, currency controls or bankruptcy regulations), a background in commerce, finance or accounting is a definite asset. Labour lawyers advise on policy matters and wage trends and represent their clients in negotiations and at tribunals. Criminal lawyers defend people who have been charged with crimes. Other areas of specialization include industrial property law, family law, estate law, municipal law and litigation.

Notaries have responsibilities which differ in various provinces. In Quebec, notaries are registered and provide assistance and advice outside the courts. In British Columbia, notaries draft and file property mortgages, leases and transfer documents as well as draw up and execute wills. Notaries in the rest of Canada are lawyers who qualify for a notary's certificate, or local persons who witness signatures and take oaths and affidavits.

Educational Background and Skills

Admission to most provincial bars requires the completion of at least two years of undergraduate training, three years at a recognized law school, 12 months of articling and the completion of a bar admission course and bar examination. In Quebec, graduates from CEGEP, enter the Bachelor of Law program for three years, complete eight months of bar admission courses, and spend six months training with a practicing lawyer before they are admitted to the bar. To become a notary in Quebec, CEGEP graduates must complete a three-year university law-degree program, take an additional one-year course in notarial practice and pass the examination set by the Chamber of Notaries.

Nature of Supply

Most new lawyers come from the formal education system. Entrance usually occurs between the ages of 25 and 34, with people beginning to leave between the ages of 55 and 64, implying that the average career as a lawyer spans 30 years. The proportion of women has increased from 15% in 1981 to 21% in 1986, a trend that is expected to continue.

Market Conditions and Job Prospects

Growth in employment for both lawyers and notaries was substantially greater than average over the 1981-to-1989 period. Services provided are relatively insensitive to changes in the business cycle.

Since the early 1980s, employment growth has been the same as the national average. Rising divorce rates, other non-economic factors and economic recovery have kept demand up, and experienced lawyers enjoyed low unemployment between 1984 and 1988.

Over the projection period, employment growth should continue to be above average, because of increased demand for services which are not tied to general economic performance. Growth areas include constitutional law, consumer protection, international law, corporate-securities law and family law. Demand for legal services will be affected by legislative changes. Employment will generally be stable, but lawyers with their own practices may be affected by both movements in the business cycle and the trend towards advertisement of legal services.

Generally, economic and institutional conditions over the 1989-to-1995 period are predicted to allow growth at a rate slightly faster than average, much the same as between 1981 and 1989. The number of jobs created over this period is expected to be about 19,000, with slightly less than two-thirds resulting from replacements for retirements, deaths or other vacancies.

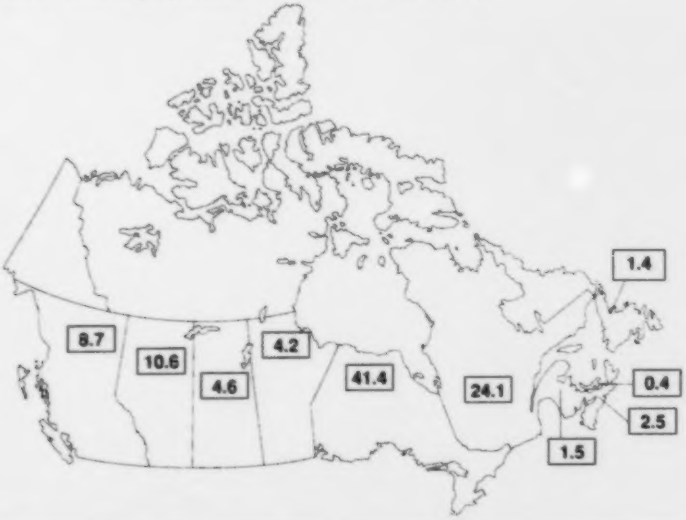
1985 Annual Earnings	$	
Lowest 10% of Workers	14,346	or less
Average Worker	41,567	
Highest 10% of Workers	70,816	or more

Source: 1986 Census

Librarians, Archivists and Conservators 2351

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	18,593	2.9	2.5	7,046
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	20	80	4	80	16	76	24
	1986	20	80	3	82	15	74	26
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (80)
- Education (66)
- Hospital (6)
- Business (3)

Public Administration (13)
- Federal (6)
- Provincial (4)
- Municipal (3)

Transport & Communications & Utilities (2)
- Radio & TV Broadcasting (1)

Librarians, Archivists and Conservators

2351

Job Environment

Three distinct professions exist within this occupational group. Contemporary librarians, aided by the latest computer technology, provide both technical services, acquiring and organizing library collections, and public services, assisting users in finding information. They work in a range of positions for tax-supported institutions at the federal, provincial and municipal levels of government and in private sector libraries.

Archivists are responsible for the selection, evaluation and acquisition of documents for such institutions such as universities and museums and for different levels of government. They develop contacts and pursue leads to obtain materials such as historical photographs, maps, films, tapes, private manuscripts and outdated public, municipal and corporate records. Archivists also authenticate records, and index and classify all sources to be preserved. They provide research and reference services to the public.

Conservators preserve and restore historic objects and works of art in the collections of archives, museums, universities and government departments. These collections may include paintings, photographs, pottery, antique furniture, documents, works of art on paper or in metal or stone, and other artifacts. In their work, conservators use various scientific techniques, such as ultraviolet photography, and radiographic and microscopic examination. Conservators also conduct research, prepare reports and advise on the condition of artifacts and works of art.

Educational Background and Skills

The minimum education required for librarians is an undergraduate degree, although a graduate degree in library science is rapidly becoming necessary. Some knowledge of computer science especially computerized index systems, is also useful, owing to increased automation in libraries. A graduate degree in archival studies is desirable for archivists. Conservators should have a graduate degree in art conservation or have completed a college program in conservation. A knowledge of chemistry is also an asset.

Nature of Supply

The primary source of supply to this occupation is the formal post-secondary education system. Labour force re-entrants and immigrants also supplement the supply.

This occupational category is predominately female. The average age (41) changed little over the 1981-to-1986 period. A typical career lasts between 35 and 40 years, and entry normally occurs between the ages of 25 and 29.

Market Conditions and Job Prospects

Employment for librarians, archivists, and conservators grew more than average over the 1981-to-1989 period. The relative stability of employment is due to the fact that about two-thirds is concentrated in education.

Since the early 1980s, employment in the occupation has grown at slightly more than the average rate, a result of the nature of the service provided.

Over the 1989-to-1995 period, employment should grow at slightly above-average rates because of growth in government hiring and an increased demand for these services. Business cycle swings do not affect the occupation, but it is sensitive to changes in government expenditures.

Entry-level positions are available to new university graduates. The best prospects exist for those persons specializing in scientific and technical fields, particularly in research libraries. Most of these new positions will be in smaller, more specialized libraries.

Economic conditions over the 1989-to-1995 period are predicted to result in employment growth that is faster than average but not as fast as between 1981 and 1989. Some 7,000 jobs should be created over this period, with about two-thirds arising from retirements and deaths or employees leaving the occupation.

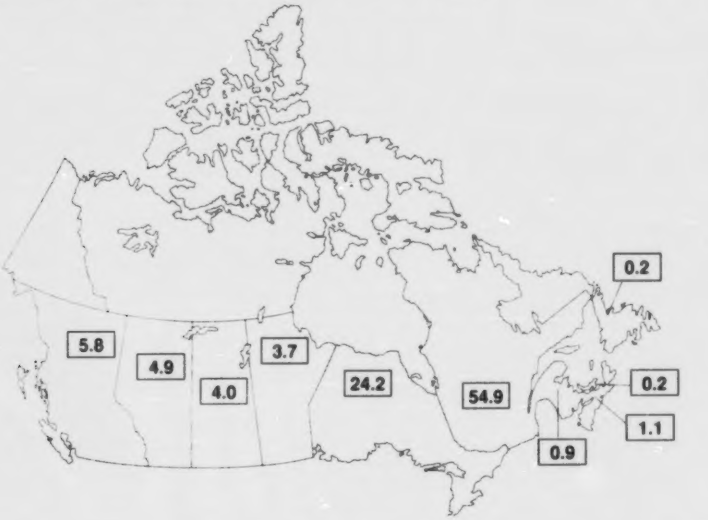
1985 Annual Earnings	$	
Lowest 10% of Workers	16,264	or less
Average Worker	27,782	
Highest 10% of Workers	41,240	or more

Source: 1986 Census

Technicians in Library, Museum and Archival Sciences 2353

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,104	-0.9	1.7	851
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	33	67	22	68	10	84	16
	1986	31	69	12	80	8	84	16
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (76)
- Education (57)
- Miscellaneous (13)
- Hospital (3)

Public Administration (18)
- Provincial (7)
- Federal (6)
- Municipal (5)

Trade (3)
- Retail (3)

Technicians in Library, Museum and Archival Sciences

2353

Job Environment

Technicians in a library may manage the circulation desk, handle information requests or operate a telex machine or computer to verify or search for information. Technicians also set up displays and instruct users in the operation of audiovisual equipment and microfilm or microfiche readers. Those who work in the technical service area of libraries are usually responsible for acquiring, organizing and displaying library materials, doing searches, cataloguing and ordering materials, and maintaining files.

Archival technicians arrange for the safe storage of permanent records and historically valuable documents. They also help archive users to locate material.

Museum technicians prepare and maintain exhibits, using highly technical processes which require considerable skill.

Educational Background and Skills

A library, archival or museum technician must have graduated from a community college or institute of technology in a program that emphasizes library, museum or restoration techniques. To advance beyond the level of technician, a master's degree in a related field of study is considered desirable. In small or rural libraries, these requirements are not as rigorous.

Nature of Supply

Most enter this occupational group from the formal post-secondary educational system. However, a large portion of these graduates have come from unrelated fields, as many are humanities graduates from community colleges or arts graduates from universities.

Women dominate this field. The average age of individuals (36) has risen dramatically since 1981, reflecting the effect of fewer new young entrants between 1981 and 1986 because of the decline in employment. A typical career begins between the ages of 25 and 29 and lasts between 25 and 30 years.

Market Conditions and Job Prospects

Employment opportunities for technicians in library, museum and archival sciences declined during the 1981-to-1989 period, largely due to major changes in library or archival operations. Difficulties are reflected by the large unemployment numbers.

Over the 1989-to-1995 period, employment growth is expected to approximate the average. Employment is largely independent of the business cycle but is somewhat sensitive to government spending. Changes in technology will play a crucial role in the future. Since the 1960s, technological innovations in library procedures have lowered cataloguing costs, encouraged rapid diffusion and enabled most library systems to become fully automatic. Extensive data bases in such areas as law, patents, medicine and chemistry are now readily available. New identification systems using bar codes and track users help control and manage inventory. The effects of these advances on employment are not straightforward: computer systems to catalogue publications and to control circulation may increase opportunities for senior technicians, but, at the same time, may reduce the necessity for other personnel as the public learns how to operate the various data bases without help.

Employment growth in this occupation will be average between 1989 and 1995, a significant improvement over the declines between 1981 and 1989. Approximately 800 jobs should open during this period, with more than two-thirds resulting from replacements due to death, retirement or other reasons.

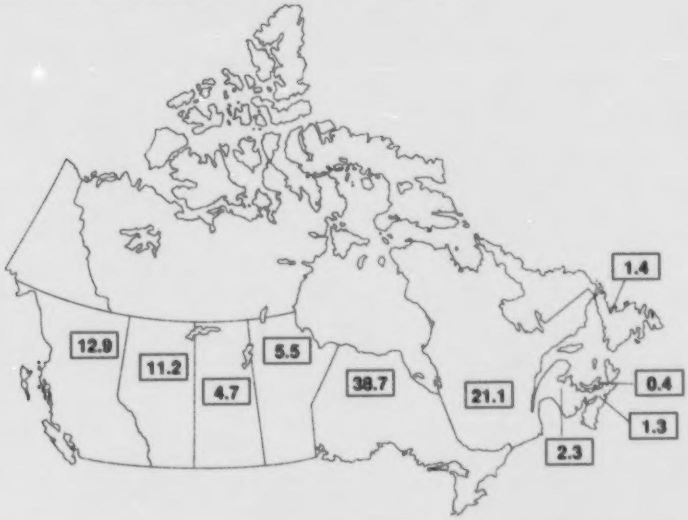
1985 Annual Earnings	$	
Lowest 10% of Workers	14,895	or less
Average Worker	23,354	
Highest 10% of Workers	31,518	or more

Source: 1986 Census

Educational and Vocational Counsellors 2391

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	7,518	3.8	1.9	4,723
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	53	47	6	85	9	87	13
	1986	46	54	6	86	8	87	13
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (88)
- Education (77)
- Health and Welfare - Non-Hospital (5)
- Miscellaneous (2)

Public Administration (11)
- Provincial (7)
- Federal (2)
- Municipal (2)

Educational and Vocational Counsellors

2391

Job Environment

This category includes educational advisors, guidance counsellors, employment counsellors and vocational counsellors. Counsellors can be found in schools, businesses, industry, government, community agencies and consulting. Their responsibilities include helping people to make career decisions at various stages in life and to develop the life skills necessary for adapting to a rapidly changing society.

Career counsellors assess clients' needs and assist them in seeking and preparing for jobs. Other counsellors may limit themselves to helping those with special needs, such as retired people, disabled people, women, ethnic minorities, immigrants, prison inmates, apprentices and the unemployed.

Educational Background and Skills

The basic educational requirement in this field is an undergraduate degree in education, psychology, social work or sociology. A master's degree in a related field, such as counselling, is considered an asset. In Quebec, a master's degree in career counselling is a requirement of la Corporation professionelle des conseillers d'orientation du Québec. In most school systems, counsellors must be certified teachers with additional training in counselling.

Nature of Supply

The post-secondary education system is the main channel of entry into this occupation. There is a small but significant influx of people from related occupations, suggesting that some people enter this field in the latter part of their career.

Between 1981 and 1986, the number of women choosing this career increased to the point where it now exceeds the number of men. The average age (39) and the age structure of this occupation have remained relatively stable since 1981, although the younger age profile indicates that new graduates are admitted to this profession as older workers advance to administrative or managerial positions. A typical career in this field spans 20 years, with entry normally occurring between the ages of 20 and 30.

Market Conditions and Job Prospects

Employment growth for educational and vocational counsellors was substantially better than average for all occupations over the 1981-to-1989 period. Low growth in such sectors as secondary education was offset by growth in other areas, although unemployment in this field remained high.

Between 1989 and 1995, employment is expected to grow at a rate roughly equal to the average, largely the result of moderate growth in the educational sector.

The majority of these counsellors work in education, while about 10% are employed in government. These occupations are influenced somewhat by provincial funding of education services and enrollment, although their institutional nature insulates them from severe economic swings. Enrollment in secondary schools is expected to increase in the mid-1990s, but overall fiscal constraints may limit opportunities in this field. Counsellors who can serve older workers displaced by the changing structure of the labour force may enjoy the best employment prospects.

In general, economic and demographic conditions over the 1989-to-1995 period will be such that employment in this occupation will grow at the average rate, which is less than it did over the 1981-to-1989 period. The number of jobs that become available over this period should approximate 4,700, with slightly more than three-quarters arising from existing employees retiring, dying or leaving the occupation for other reasons.

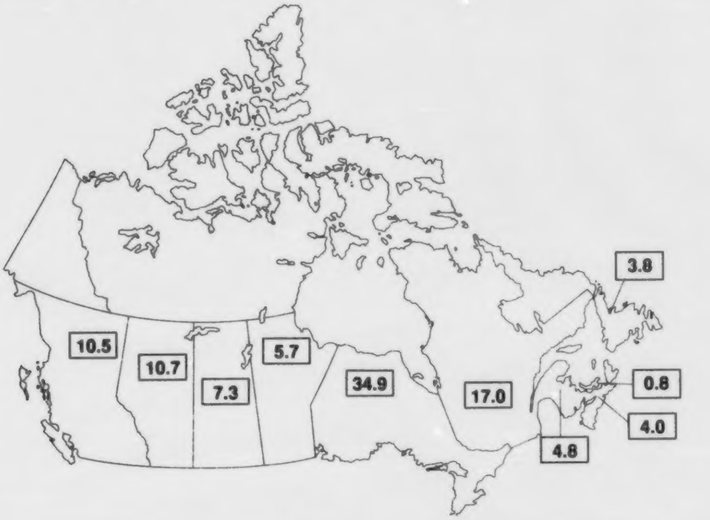
1985 Annual Earnings	$	
Lowest 10% of Workers	19,790	or less
Average Worker	34,998	
Highest 10% of Workers	47,328	or more

Source: 1986 Census

Ministers of Religion 2511

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	25,376	0.8	0.0	2,639
All Occupations	12,434,282	1.5	1.5	8,062,668

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	93	7	3	64	33	92	8
	1986	90	10	2	66	32	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (98)
- Religion (94)
- Hospital (2)
- Health and Welfare - Non-Hospital (1)

Ministers of Religion

2511

Job Environment

This occupational group includes priests, rabbis, ministers, bishops, curates, missionaries, evangelists and Salvation Army officers. In spite of their different religious denominations, their work remains essentially the same: conducting worship services and ceremonies, teaching, counselling, managing and developing community relations. Many clerics serve as leaders of churches and synagogues. Some serve as chaplains in the armed forces, in correctional institutions and hospitals, on university campuses and as missionaries at home and abroad.

Educational Background and Skills

The academic training required to become a minister of religion varies from one religious group to another. In some cases a master's degree in divinity is required, while in others only a certificate in religious studies is needed. Some churches also require a period of internship in the practical activities of the ministry, under the supervision of an experienced minister. Thus, becoming a member of the clergy may take from two to seven years. Exceptions to this process may exist for older, more experienced individuals. In some denominations, preparation entails a period of study at a seminary outside of Canada.

Nature of Supply

The majority of individuals enter this occupation through the post-secondary educational system, usually with a degree in religion/theology or a related field in the social sciences and the arts. Labour force re-entrants and immigrants are also significant sources of supply to the ministry.

Historically, this occupation has been dominated by men (partially due to doctrine), although a recent trend towards the ordination of women is altering the gender balance. The age structure is heavily weighted toward the older age groups, with an average age of 47. The majority of individuals enter this occupation between the ages of 25 and 34 and begin leaving between 60 and 64.

Market Conditions and Job Prospects

Employment growth for ministers of religion is not affected by fluctuations in the economy, since the institutional nature of the profession insulates it from the business cycle.

Although the demand for ministers has been quite stable, it has grown at a rate slower than the average. A shortage of young people willing to enter the occupation has produced an extremely low incidence of unemployment among ministers.

Over the 1989-to-1995 period employment is expected to continue to grow at a rate below the average, largely because of slow growth in the demand for minister's services. Most ministers of religion work in religious institutions although some work in hospitals or public administration. The outlook is quite varied among denominations, as many are experiencing severe personnel shortages while others are being flooded with new graduates.

Employment in this occupation will experience very little growth between 1989 and 1995, even less than was experienced in the 1981-to-1989 period. The number of jobs created over this period should approximate 2,700, with almost all arising from existing employees retiring, dying, or leaving the occupation for other reasons.

Earnings

The following averages are not representative because there is enormous variation in the salaries paid to ministers of different denomination: in some cases the variation may be as much as 300%.

1985 Annual Earnings	$	
Lowest 10% of Workers	6,431	or less
Average Worker	18,922	
Highest 10% of Workers	31,952	or more

Source: 1986 Census

For further information, contact:

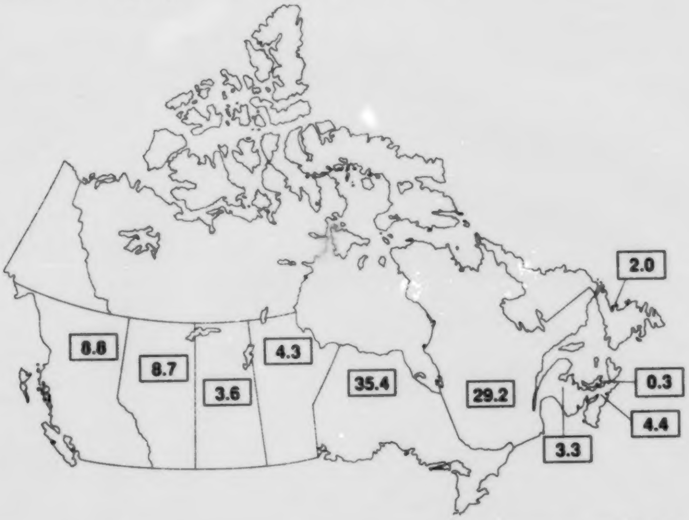
Board of Jewish Education
Suite 232, 4600 Bathurst Street
Willowdale, Ontario M2R 3V3
(416) 633-7770

The Anglican Church of Canada
600 Jarvis Street
Toronto, Ontario M3C 1R9
(416) 924-9192

University Teachers 2711

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	35,831	1.9	1.6	15,542
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	77	23	3	84	13	83	17
	1986	75	25	3	81	16	79	21
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (100)
- Education (100)

University Teachers

2711

Job Environment

This occupational group includes all teaching positions at the university level: assistant and associate professor, lecturer, instructor and fellow. The work of full-time university teachers is diverse, extensive and demanding. Professors must prepare teaching material, give lectures, produce timely publications in their areas of research, mark student assignments and serve on faculty committees dealing with such matters as curriculum development and degree requirements.

Educational Background and Skills

Although the minimum educational requirement for this occupation is a master's degree, increased competition for university teaching positions has made completion of a PhD almost essential.

Nature of Supply

The primary source of supply to this occupation is the university system, augmented by immigration. For many, this occupation may be near the top of the career ladder.

While most individuals in this occupation are men, the proportion of women has been increasing and is expected to continue to do so. The distribution of university teachers across Canada roughly parallels the distribution of population.

Reflecting the academic requirements for this occupation, the proportion of university teachers under 25 years of age is very low; the great majority are between 25 and 54, and the proportion over 55 is much higher than that for all other occupations. Entry occurs between the ages of 30 and 34, and retirement normally takes place between 60 and 64, for a typical career of about 30 years. The average age in this field is 43.

Market Conditions and Job Prospects

Employment growth in this group was well above average during the 1970s as a result of fast growth in the education sector. It has since moderated considerably, and will continue to do so because of demographic and financial constraints. Current projections forecast only slightly faster-than-average employment growth. Openings caused by death and retirement are expected to make up the bulk of job opportunities.

Universities have recently begun offering more and more seasonal positions in place of tenure appointments. Competition for available faculty positions is stiff, although some specialties may be more accessible than others.

Employment in this occupational group is not susceptible to fluctuations in the economy, although overall university funding is. Teaching is generally restricted to September through April. Technological changes in the workplace would only involve teaching aids and therefore would not likely affect employment levels.

1985 Annual Earnings	$	
Lowest 10% of Workers	29,425	or less
Average Worker	47,308	
Highest 10% of Workers	65,117	or more

Source: 1986 Census

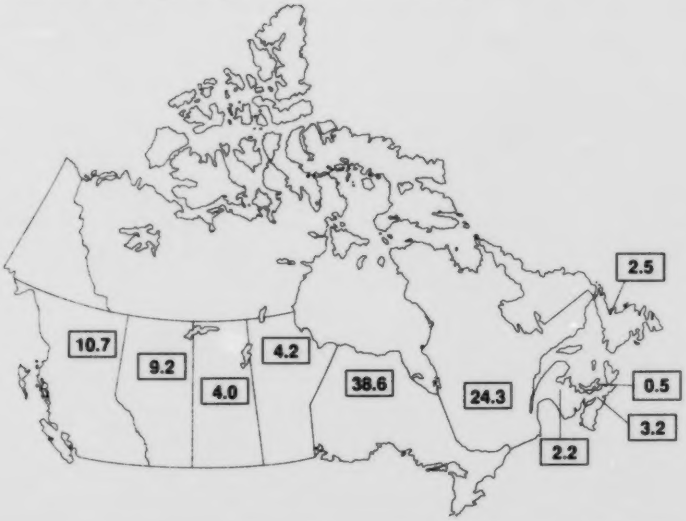
For further information, contact:

Canadian Association of University Teachers
Suite 308, 294 Albert Street
Ottawa, Ontario K1P 6E6
(613) 237-6885

Elementary and Kindergarten Teachers 2731

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	190,366	1.8	1.7	79,410
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	20	80	8	87	5	81	19
	1986	20	80	6	89	5	78	22
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (100)
- Education (93)
- Health and Welfare - Non-Hospital (7)

Elementary and Kindergarten Teachers

2731

Job Environment

This occupational group includes pre-elementary (kindergarten) and elementary (grades 1 to 6) teachers. They are primarily generalists who teach children between 4 and 13 years of age. They may teach all subjects, but many schools hire specialists for physical education, art, music and library duties. In addition to teaching the basic curriculum (which varies slightly between provinces), kindergarten teachers have the responsibility of developing attention skills, of helping children acquire personal and social habits and of stimulating them to ask questions, discover answers and learn how to cope with problems. Accordingly, they prepare and present lessons geared to individual needs. At this level, students frequently need remedial or extra help. With the increasing integration of exceptional pupils into mainstream classes, elementary and kindergarten teachers will need to acquire additional specialized teaching skills. Teachers monitor their pupils' progress and discuss their needs with parents and other educational professionals. In addition, teachers participate in staff meetings, educational conferences and teacher-training workshops.

Educational Background and Skills

The minimum requirement for elementary or kindergarten teachers is the possession of a Bachelor of Education degree. In some provinces, this may be obtained by entering a four-year Bachelor of Education program at university, while in other provinces, an undergraduate degree is followed by a one-year Bachelor of Education program. All provinces require certification of their public school teachers, and it should be noted that not all provinces recognize certificates from other parts of the country.

Career advancement for teachers lies in administrative areas, where promotion is possible to positions as department head, principal or school board official.

Nature of Supply

The main source of supply to this field is the post-secondary education system, with labour force re-entrants and, to a lesser extent, immigrants providing additional candidates. Preliminary estimates indicate that the number of people who leave this occupation to enter a related one will marginally exceed the number entering the occupation from others.

The majority of kindergarten and elementary teachers are women, with men accounting for about 20% of total employment in 1986. The average age increased from 36 in 1981 to 38 in 1986. A typical career spans 25 to 30 years, and normally begins when the teacher is between the ages of 25 and 29.

Market Conditions and Job Prospects

During the first half of the 1980s, employment growth in this group was above average. The institutional nature of this occupation insulates it from economic fluctuations in the short run. A shortage of teachers has arisen in many isolated communities due to a drop in the supply of young teachers and an improvement in employment prospects in larger population centres.

Over the 1989-to-1995 period, the demand for elementary teachers will depend on the size of the school-age population and on the student-to-teacher ratio. The school-age population is expected to continue to grow over the 1989-to-1995 period as the current baby boom arrives in the elementary schools.

Part-time work is expected to be a major source of employment growth in this area. It takes many forms in this profession, such as supply teaching, work-sharing and specialty teaching (e.g., music, art). While technological change is improving teaching methods (computers, advanced teaching guides) it is not expected to affect employment patterns.

In general, economic and demographic conditions over the 1989-to-1995 period will ensure employment growth at the same rate attained in the 1981-to-1989 period. The number of new jobs created over this period should approximate 80,000, with almost three-quarters arising from existing employees retiring, dying or leaving the occupation for other reasons.

1985 Annual Earnings	$	
Lowest 10% of Workers	17,705	or less
Average Worker	31,256	
Highest 10% of Workers	42,875	or more

Source: 1986 Census

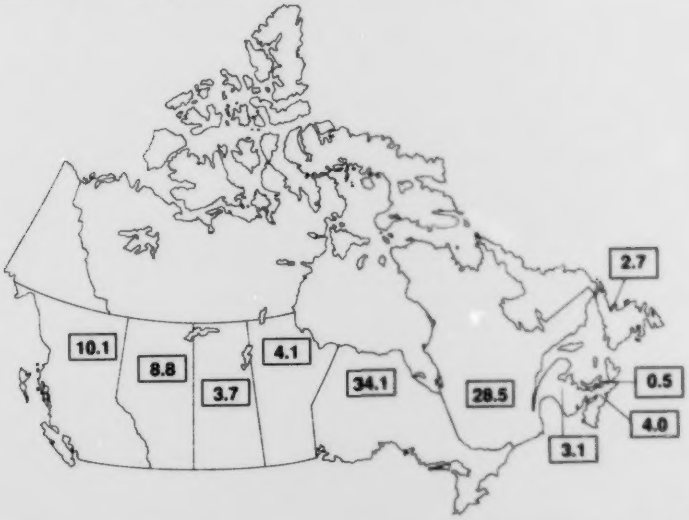
For further information, contact:

Canadian Teachers' Federation
110 Argyle Avenue
Ottawa, Ontario K2P 1B4
(613) 232-1505

Secondary School Teachers 2733

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	127,240	-0.4	0.5	41,972
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	58	42	3	90	7	90	10
	1986	56	44	3	90	7	87	13
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (99)
- Education (99)

Secondary School Teachers

2733

Job Environment

This occupational group consists of junior and senior high school teachers (Grades 7 to 13). Most are trained as specialists in subjects as varied as mathematics, sciences, languages and industrial arts, but they may sometimes be required to teach courses outside their chosen area.

In addition to their classroom duties, secondary school teachers must spend time researching their subjects, preparing background materials for lessons and deciding how to stimulate student interest. They frequently supervise extracurricular activities and occasionally work additional hours in the evenings or on weekends to prepare student evaluations and meet with parents. A major attraction of this occupation is that teachers are entitled to a great deal of time off including school holidays and long summer vacations.

Educational Background and Skills

Employment in this occupation usually requires completion of a Bachelor of Education program, which in some provinces is preceded by an undergraduate degree. Provincial certification is required to teach in the public school system, and conditions for certification vary from province to province. Teaching certificates are not valid throughout the country, although many provinces have reciprocal agreements recognizing each other's certification. Teachers must have a genuine interest in young people and an ability to instill in them a desire to learn.

Nature of Supply

The primary source of supply to this occupation is the formal post-secondary education system. Labour force re-entrants and immigrants are other sources of supply. Although the movement of people between occupations cannot be measured precisely, the number moving into this occupation from related ones is expected to exceed marginally the number leaving it for other occupations over the projection period.

The majority of secondary school teachers are men, although the proportion of women in this occupation is slightly greater than the overall occupational average. The average age of individuals in this occupation rose from 38 years of age in 1981 to 40 in 1986.

Entrance into this field normally occurs between the ages of 25 and 29, and most retirements take place between the ages of 55 and 59, for an average career of about 30 years.

Market Conditions and Job Prospects

The institutional nature of this occupation insulates it from fluctuations in the economy in the short run, but a fall in secondary school enrollment in the first half of the 1980s led to a contraction in employment during the last decade. This has been partially offset by a temporary shortage of teachers in many isolated communities, which was due to a drop in the supply of young teachers and an improvement in employment prospects in larger population centres.

Over the 1989-to-1995 period, the demand for secondary teachers will depend on the size of the school-age population and on class sizes. The average class size is largely determined by government education budgets but is expected to continue to drop slowly. The secondary school population, however, is not expected to grow substantially over the 1989-to-1995 period because the current baby boom will not have reached secondary school by 1995.

Part-time work is expected to be a major source of employment growth in this area. It takes many forms, such as supply teaching, work-sharing and specialty teaching (e.g., music, art). While technological change is improving teaching methods (computers, advanced teaching guides), it is not expected to affect employment patterns.

In general, economic and demographic conditions over the 1989-to-1995 period will be such that employment in this occupation will grow slightly faster than it did in the 1981-to-1989 period. The number of job openings created over this period should approximate 40,000, with almost all of the positions arising from existing employees retiring, dying or leaving the occupation for other reasons.

1985 Annual Earnings	$	
Lowest 10% of Workers	26,013	or less
Average Worker	36,227	
Highest 10% of Workers	46,518	or more

Source: 1986 Census

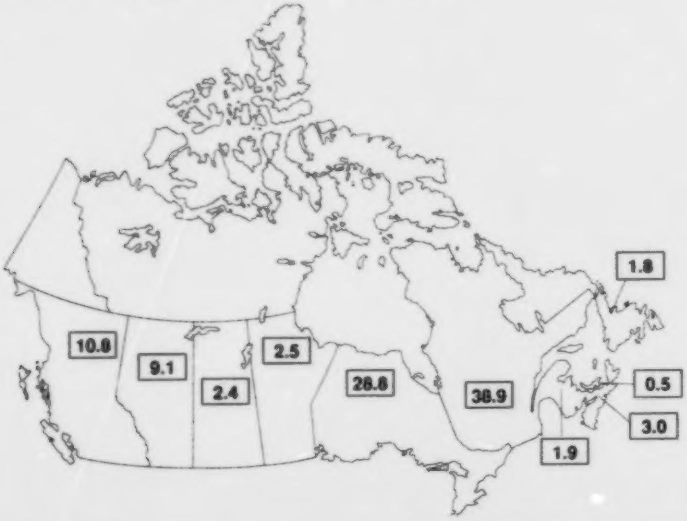
For further information, contact:

Canadian Teachers' Federation
110 Argyle Avenue
Ottawa, Ontario K2P 1B4
(613) 232-1505

Community College and Vocational Teachers 2791

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	35,830	3.2	1.5	21,836
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	62	38	4	87	10	82	18
	1986	59	41	3	86	11	80	20
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (96)	Public Administration (3)
- Education (94)	- Federal (2)
	- Provincial (1)

Community College and Vocational Teachers

2791

Job Environment

Community college and vocational instructors teach courses in a broad range of fields at post-secondary and trade/vocational institutions. They cover such areas as medical and dental technology, bookkeeping, community and social services, behavioural science, electronics, engineering trades, arts, aircraft and heavy duty mechanics, and construction trades. Although the duties of college and vocational instructors vary with the teaching mandate, the size of the school, the subject area and the level of instruction, there are some similarities in general duties and responsibilities. Most instructors spend their day teaching classes in lectures, demonstrations or lab work. Instructors in some programs employ a hands-on approach, supervising their students in independent or group projects. Other duties resemble those assumed by teachers at other levels, such as preparing lessons and marking assignments and exams. After acquiring experience, instructors may advance to positions such as department or program head, which involve supervisory and administrative duties.

Educational Background and Skills

Between 13 and 16 years of formal schooling are necessary for employment in this occupation, including two to four years of preparation in a field of specialization. Work experience and courses in education are regarded as assets.

Nature of Supply

The majority of people in these occupations have a university degree in their field of instruction, and many have some teacher training as well.

Most college instructors are men. Between 1981 and 1986, however, the percentage of women grew significantly and this trend is expected to continue. The majority of instructors work in Quebec and Ontario.

The average age (41) in this occupation has remained relatively stable since 1981. Most instructors enter this field later than average, usually gaining experience in the subject they will be teaching. Nevertheless, they still stay in the occupation an average of 30 years.

Market Conditions and Job Prospects

Employment growth for community college and vocational teachers was well above the average for all occupations over the 1981-to-1989 period. Increasing demand for vocational training and independence from the business cycle ensure high growth for this occupation, as evidenced by steady growth during past economic downturns. Improved employment opportunities in this area over the 1984-to-1988 period are reflected by falling unemployment levels.

Between 1989 and 1995 employment is expected to grow at the economy-wide average. This fall-off in growth occurs as enrollments in these institutions declines.

Part-time employment is available in this occupation. Instructors may be hired for several semesters or on short-term contracts.

Although this is a seasonal occupation, its schedule is much more regular than that of elementary or secondary teaching levels, since many community college and technical institutions offer summer courses. Technological change is making itself felt in the classroom through the application of computers and the use of more sophisticated machinery in technical courses. However, as in other areas of teaching, these changes are not expected to alter employment patterns greatly.

Employment growth in this occupation from 1989-to-1995 will slow from its 1981-to-1989 level. The number of openings is expected to approximate 22,000, more than 80% of which will arise from existing employees retiring, dying or leaving the occupation.

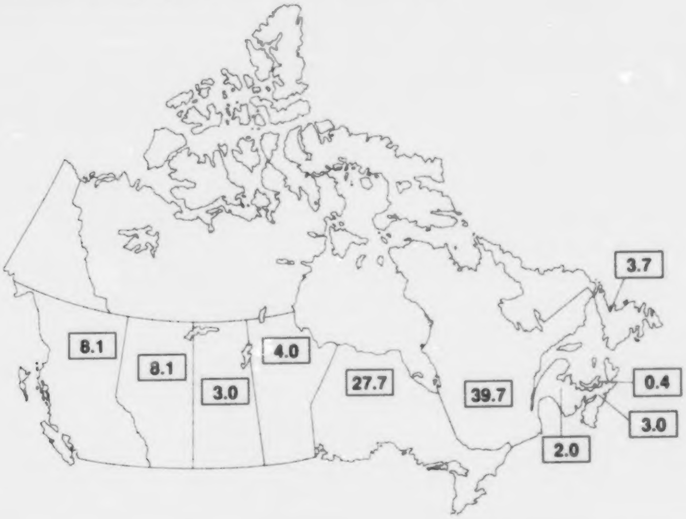
1985 Annual Earnings	$	
Lowest 10% of Workers	24,955	or less
Average Worker	36,635	
Highest 10% of Workers	47,321	or more

Source: 1986 Census

Teachers of Exceptional Students 2795

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	24,995	3.3	2.2	16,588
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	29	71	19	76	5	80	20
	1986	25	75	12	83	5	77	23
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (95)
- Education (59)
- Health and Welfare - Non-Hospital (29)
- Hospital (5)

Public Administration (4)
- Provincial (3)

Teachers of Exceptional Students

2795

Job Environment

This category of teachers works with blind, hearing-impaired, mentally and physically disabled, and gifted students. They evaluate the needs and abilities of their students and provide them with a special education curriculum which stresses basic academic criteria and which is adapted to the student's needs.

The average class size is much smaller than that of standard classes, but increasingly these students are being integrated into regular schools and classes, where special educators act in advisory roles.

Educational Background and Skills

The minimum requirement to enter this occupation is a bachelor's degree in education. In addition, degrees in special education or specialized courses are usually required. Most individuals entering this occupation have studied elementary or secondary teaching, educational counselling, physical education or psychology.

Provincial certification is compulsory for teaching in the public school system, and teachers have no guarantee that their teaching certificate will be valid in a different province. Reciprocal provincial agreements are, however, allowing greater interprovincial mobility for teachers.

People in this occupational group must have a genuine interest in guiding, motivating and aiding the development of exceptional students.

Nature of Supply

The main source of supply to this occupation is the formal post-secondary education system. Other sources include re-entrants to the labour force and immigrants.

This occupation is predominately female, and the majority of these teachers reside in Quebec and Ontario. The average age (35) has risen since 1981, and the number of people within the 25-to-54-year age group has also increased. A typical career lasts 30 years and is usually begun between the ages of 25 and 29.

Market Conditions and Job Prospects

Employment growth for teachers of exceptional students was much higher than the average for all occupations over the 1981-to-1989 period. This is a stable occupation, resulting from the fact that a majority of this employment is concentrated in the educational sector. The growth resulted from an increased awareness of the need for and benefit of these services. Unemployment is consistently low.

Between 1989 and 1995 employment is expected to grow at a rate slightly above average but not as fast as over the 1981-to-1989 period. The number of new jobs created should approximate 16,500, with well more than two-thirds arising from existing employees retiring, dying or leaving the occupation for other reasons. The trend towards putting exceptional students into regular classrooms and assigning special education teachers advisory roles could reduce projected growth, however.

1985 Annual Earnings	$	
Lowest 10% of Workers	13,633	or less
Average Worker	27,475	
Highest 10% of Workers	41,525	or more

Source: 1986 Census

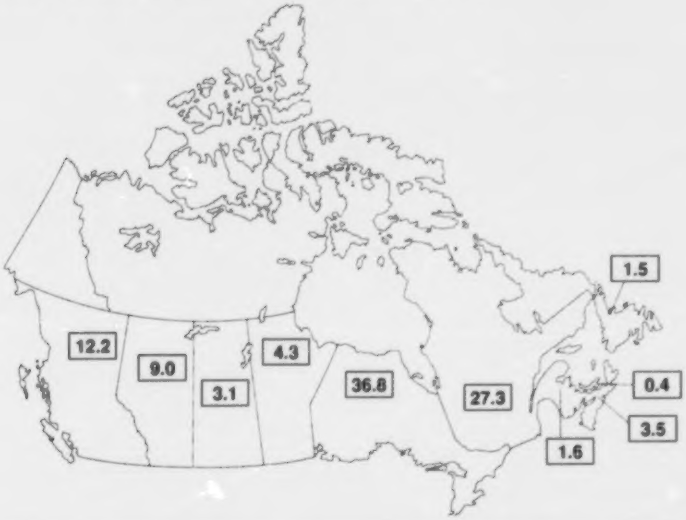
For further information, contact:

Canadian Teachers' Federation
110 Argyle Avenue
Ottawa, Ontario K2P 1B4
(613) 232-1505

Physicians and Surgeons* 3111

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	55,589	3.2	2.5	14,031
All Occupations	12,434,282	1.5	1.5	8,057,395

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	83	17	3	78	19	94	6
	1986	79	21	2	76	22	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (97)
- Health and Welfare - Non-Hospital (66)
- Hospital (26)
- Education (5)

Public Administration (2)
- Provincial (1)

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* Includes Interns and Residents. In 1988, this group accounted for approximately 13 % of all physicians.

Physicians and Surgeons

3111

Job Environment

Physicians and surgeons are concerned with the prevention and treatment of human illness and injury. Physicians examine patients, determine their medical histories and establish a diagnosis. They prescribe and administer drugs or medical or surgical treatment, and certify births, deaths and outbreaks of reportable contagious diseases. Today, just over one-half of Canada's physicians are general practitioners. They undertake the primary care of patients who suffer from a wide variety of illnesses or injuries. If necessary, they refer their patients to specialists for diagnosis and treatment, and assume responsibility for continuity of care. Physicians who choose to specialize limit their practice to specialized fields within clinical medicine, surgery or laboratory medicine. Obstetrics and gynecology, plastic surgery and neurosurgery are examples of specializations in surgery. Specializations in clinical medicine include dermatology, pediatrics, psychiatry, and radiology. Laboratory medicine specializations include haematological pathology and medical microbiology. There are 55 specialties and sub-specialties recognized in Canada.

Practicing physicians work long hours, often under stress, but they also enjoy autonomy, considerable job satisfaction, high income and employment security.

Educational Background and Skills

People wishing to enter the medical profession must be prepared to make a long-term commitment to education, both before entering formal practice and throughout their professional career. Prerequisites for acceptance by Canadian schools of medicine may include two to four years of university training (including courses in chemistry, biology and physics) and suitable scores on the Medical College Admission Test. Most of the under-graduate programs in Canadian medical schools last four years. Graduation with an M.D. degree is followed by an intense period of post-graduate training in both hospitals and clinics. This period generally lasts from one to five years, the route followed depending upon the province and the candidate's chosen level and area of specialization. Provincial licensing is a necessary condition of medical practice throughout Canada, and is generally obtained upon completion of the formal training period. General practitioners are eligible for licensing following completion of a one- or two-year clinical training program (by 1995, this will take two years in all provinces). Candidates seeking certification in family care, available through the College of Family Physicians of Canada, must complete a two-year family medicine clinical training program. Specialists are certified after completing three to five years of directed hospital-based training and passing the appropriate examination set by the Royal College of Physicians and Surgeons of Canada or the Corporation professionnelle des médecins du Québec. Specialty training can be entered either directly following graduation with an M.D., or through a general practice hospital training program.

Nature of Supply

The primary source of supply to this field is the education system, although foreign physicians entering Canada account for a relatively high proportion of each year's new doctors. Most physicians begin active practice between the ages of 24 and 37, with retirement from the profession starting in large numbers at around age 60. This suggests a minimum career length of 25 to 35 years. Early retirements primarily reflect movements into such related employment positions as university teaching and hospital administration. The female proportion of this labour force increased between 1981 and 1986, reflecting a trend which is continuing. In 1989, 44% of the medical degrees awarded by Canadian universities went to women.

Market Conditions and Job Prospects

The rate of employment growth in this profession was almost double the all-occupation average between 1981 and 1989. Although this rate of increase is expected to moderate somewhat, it will continue to surpass that for the labour force as a whole. It should be noted that since most doctors are self-employed, voluntary unemployment is relatively unknown in this field. As a consequence, the primary limits on employment for physicians are medical school enrollment quotas and foreign physician immigration levels. In 1984, the Federal/Provincial Advisory Committee on Health Human Resources projected a surplus of about 6,000 physicians by the year 2000, but current growth in the supply of physicians is even higher than the Committee anticipated. It is projecting that between 9,400 and 14,000 new physicians will be needed if all retirement vacancies are to be filled during the next six years.

Difficult professional and personal conditions have led to severe shortages of physicians, particularly of specialists, in some remote and rural locations, while some cities have experienced surpluses. To remedy this, most provinces have incentive programs that offer special privileges and higher incomes to physicians who are prepared to establish practices in underserviced areas. Nationwide shortages of certain specialists (e.g., in the fields of oncology, neonatology and psychiatry) have also been reported. The aging of Canada's population and the development of new medical techniques, drugs and devices will continue to change the demand for specialists.

Earnings

Most doctors' incomes are tied to provincial health insurance programs and depend on the doctor's volume and type of services, hours worked per week, area and degree of specialization, and location of practice. Although 40% or more of the gross income of self-employed physicians can be spent on overhead items such as staff, stock, capital equipment and office space, net income remains well above that of the average worker.

According to Revenue Canada, the average annual net income of self-employed physicians and surgeons ranged from $79,855 in Quebec to $111,644 in Ontario. The national average was $95,581 per annum (Revenue Canada, Taxation). In 1989, medical officers employed by the federal government earned between $50,392 and $89,226 per annum. Medical specialists earned between $78,334 and $93,010 per annum (Pay Research Bureau, 1 September 1989).

For further information, contact:

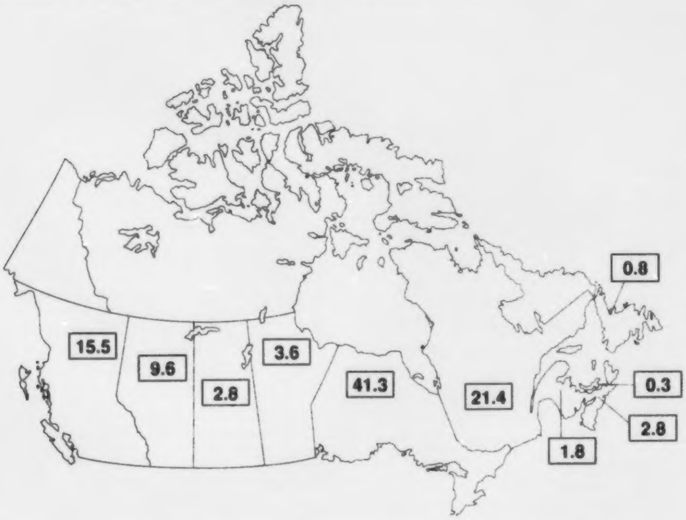
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Canadian Medical Association
Department of Health Policy and Economics
P.O. Box 8650, 1867 Alta Vista Drive
Ottawa, Ontario K1G 0G8
(613) 731-9331

Dentists 3113

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	12,841	1.7	0.5	2,580
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	92	8	3	79	18	94	6
	1986	87	13	2	83	15	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (98)
- Health and Welfare - Non-Hospital (96)
- Hospital (1)

Public Administration (2)

Dentists

3113

Job Environment

Dentists are as concerned with patient education and prevention of oral diseases as they are with the examination, diagnosis and treatment of diseases, injuries and malformations of the teeth and mouth. Although approximately 90% of dentists are general practitioners, there are nine recognized dental specialties in Canada: pedodontics, orthodontics, periodontics, oral and maxillofacial surgery, endodontics, public health, prosthodontics, oral pathology and oral radiology. The proportion of dentists entering a specialty practice has increased marginally in recent years. Most dentists are in practice alone, although an increasing proportion is opting for group practice. Solo and group dental practice both involve the employment of such additional personnel as dental hygienists, nurses, assistants and technicians. Other opportunities for dentists include employment in hospitals, educational institutions, public health units and community health programs.

Educational Background and Skills

In all provinces dentists must be licensed to practice. Entry to dental school requires from one to four years of pre-dental university study, followed by a dental aptitude test. A four-year dentistry program leads to either Doctor of Dental Surgery or Doctor of Dental Medicine. In some provinces licence renewal is subject to continuing education. Advanced degrees exist for practitioners and students who want to enter specialty practice, teaching or research. The number of graduates from basic dentistry programs has risen more or less steadily until recently, when growth has slowed significantly. Future declines are forecast as some schools begin to reduce student enrollment in response to current surpluses.

Nature of Supply

Graduates of dental programs are the major source of dentists in Canada. In 1986, 13% of Canadian dentists were female, a significant increase over five years earlier. This trend is expected to continue, as 31% of 1987 graduates in basic dentistry were women.

Most dentists are licensed between 25 and 30 years of age, and do not leave active practice in significant numbers until their retirement at age 60 or later, for a normal career of at least 30 years. The surplus of dentists is evident across Canada because rural areas and small communities no longer report problems in attracting dentists.

Market Conditions and Job Prospects

For dentists, employment growth was strong throughout the 1970s and early 1980s. After 1984, job growth fell sharply to reach the current level, only marginally above zero. This pattern is expected to continue through the mid-1990s. According to the Canadian Dental Association, any additional dentists would simply add to the present surplus, and more dentists would be sharing a workload that is not expected to change very much over the projected period. Therefore 2,200 dentists will be required for replacement openings, with the increase in actual demand limited to approximately 400 right across Canada. The low numbers who withdraw from dental practice, compared to the labour force as a whole, suggest high job satisfaction.

Among the factors influencing both the demand for and the nature of dental services are improved dental health which allows people to keep their teeth longer, expanded coverage by dental insurance plans, more regular dental care and public awareness of the importance of dental health. Improved decay-preventative measures and the use of auxiliary dental personnel may, however, neutralize the positive impact of these factors on the request for services. As Canada's population ages and dental health improves, the focus of dental practice is expected to shift somewhat from tooth to gum care.

As with any profession in which self-employment predominates, unemployment among dentists is very low, although the proportion of dentists working part-time rose to 8% in 1986. Employment is generally insensitive to changing economic conditions.

Earnings

Dentists' incomes vary considerably, depending upon the type and location of their practice, hours of work, use of auxiliary personnel and facilities available. General practitioners usually earn less than specialists. According to Revenue Canada, the average earnings of self-employed dentists in Canada was $81,000 in 1987. Dentists employed by the federal government earn from $48,043 to $74,179 per year (Pay Research Bureau, September 1989). Dentists employed in private industry can earn between $57,523 and $67,138 per annum (Pay Research Bureau, 15 August 1989).

1985 Annual Earnings	$	
Lowest 10% of Workers	5,451	or less
Average Worker	52,297	
Highest 10% of Workers	N/A	

Source: 1986 Census

For further information, contact:

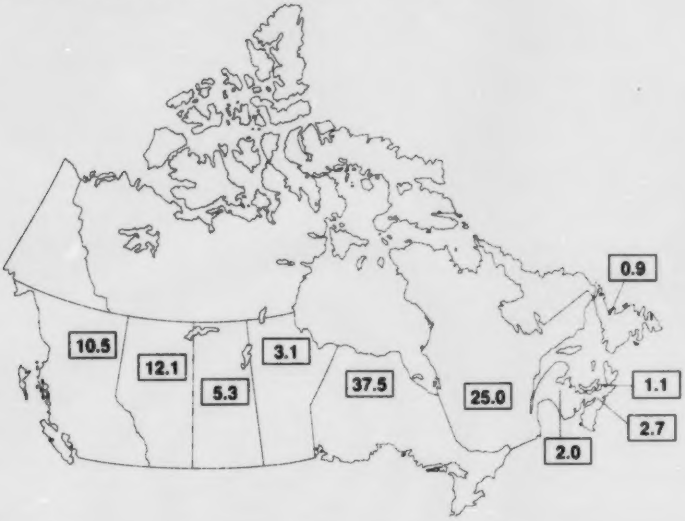
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
(613) 523-1770

Veterinarians 3115

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,041	1.8	1.9	1,666
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	84	16	5	84	11	94	6
	1986	66	34	10	81	9	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Agriculture (84)

Services (8)
- Health and Welfare - Non-Hospital (4)
- Education (4)

Public Administration (7)
- Federal (3)
- Provincial (3)

Veterinarians

3115

Job Environment

Veterinarians are responsible for the prevention, diagnosis and treatment of disease and injury in animals. They also advise clients on animal feeding, hygiene, breeding and care and are involved in meat inspection. Most veterinarians (approximately 84% in 1986) are employed in private practice, although group practices, such as animal hospitals and clinics, are becoming increasingly common in response to escalating start-up and operating costs. Veterinarians in urban areas usually treat house pets, mainly dogs and cats, whereas those in agricultural and rural communities deal primarily with farm animals. Rural practices have become more sophisticated in the last few decades because of the changing needs of large farm operations. Although rural veterinarians may still respond to emergency calls, animals are more often brought in for scheduled surgical procedures at well-equipped and staffed animal clinics. Some veterinarians specialize in the care of a particular species, work in zoos, on wildlife preserves and in education, research or government. The federal government employs veterinarians in such varied activities as disease control, research, laboratory testing, and animal and meat inspection.

Educational Background and Skills

A career in veterinary science begins with a Doctor of Veterinary Medicine (DVM) degree, the minimum requirement for registration and licensing with provincial professional associations. Available at four universities across Canada, this four-year program requires one to two years of pre-veterinary studies at the university level, with an emphasis on biological sciences, chemistry and physics. Registration is mandatory for professional practice in each province and requires an examination. Continuing education and training are important in the practicing veterinarian's career, while post-graduate studies may be required for employment in research and education.

Nature of Supply

The formal education system is the main avenue to employment in this field. Current projections indicate a possible decline in the number of DVM graduates for the future.

At the time of the 1986 census, one-third of all veterinarians were women, a marked increase over 1981. In 1987, more than 57% of graduates in DVM programs were female, a trend that is expected to continue. Most begin to practice in their mid- to late-20s. A few begin to withdraw from this labour force as early as 35 years of age, possibly reflecting movement from actual veterinary practice to one of the many related professions, such as teaching or research. Retirements occur in larger numbers as they approach 60 years of age, suggesting a career length of approximately 30 years.

Market Conditions and Job Prospects

The number of employed veterinarians rose significantly throughout the 1970s and early 1980s, the rate of growth being more than twice that of the overall occupational average. Since 1984, however, employment has grown more slowly than that of the general labour force. The growth rate should be marginally faster throughout the projected period, slightly surpassing the average rate for all occupations. Between 1989 and 1995 almost 1,700 new veterinarians will be needed in Canada: almost 500 positions will be created by growth in the economy, and the rest will be positions vacated by people who leave active practice. Because the level of occupational withdrawal is below that for all occupations, a strong pattern of career satisfaction and growth is suggested.

The employment situation for veterinarians today is extremely favourable. Unemployment is low in comparison with the general work force, primarily a reflection of their self-employment. Demand is not particularly susceptible to prevailing economic conditions, and employment tends to remain stable throughout the year, fluctuating only marginally with the seasons. Part-time employment is not common (in 1986, only 10% of veterinarians were employed part-time), although it has increased in recent years.

Earnings

Income levels vary with the type and location of the practice, hours of work, years of experience, size of community served, employment status and patient population.

Annual salary ranges for veterinarians employed by the federal government (Pay Research Bureau, September 1989) begin at $38,328 and rise to $71,819, with middle-level positions between $49,412 and $60,035, and senior-level jobs ranging from $62,019 to the maximum previously listed.

1985 Annual Earnings	$	
Lowest 10% of Workers	11,565	or less
Average Worker	34,955	
Highest 10% of Workers	59,796	or more

Source: 1986 Census

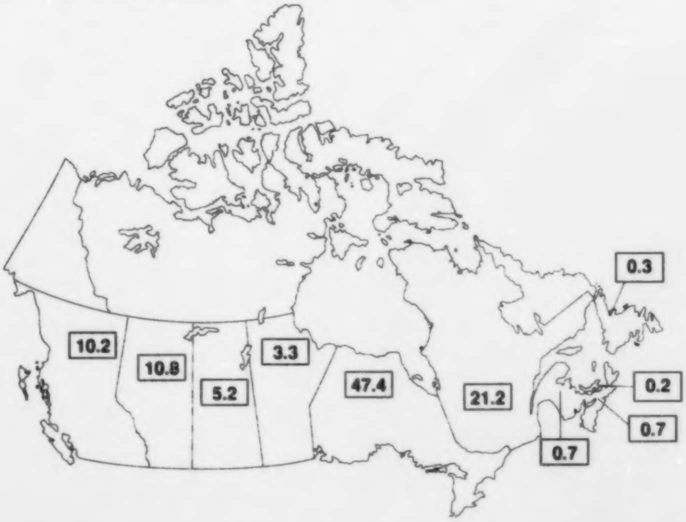
For further information, contact:

Agriculture Canada
Sir John Carling Building
Room 361, 930 Carling Avenue
Ottawa, Ontario K1A 0C5
(613) 995-5880

Chiropractors and Osteopaths 3117

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,382	4.4	0.6	770
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	87	13	4	79	17	91	9
	1986	84	16	3	82	15	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (99)
- Health and Welfare - Non-Hospital (98)

Chiropractors and Osteopaths

3117

Job Environment

Chiropractors and osteopaths work mainly in private or group practice. Like other medical professionals, they are concerned with the prevention, diagnosis and treatment of disease or injury, although they do not limit themselves to one particular part of the body; they pay special attention to the muscular, skeletal and nervous systems. Their methods of treatment vary substantially, however. Chiropractors adjust the body by manipulating its structures, whereas osteopaths treat disorders with diagnostic and therapeutic methods (of which structural manipulation can be an element) and with traditional medical techniques. Both may employ specially trained assistants. There are few osteopaths in Canada.

Educational Background and Skills

In most provinces, chiropractors and osteopathic physicians must be licensed to practice. Chiropractors must complete a four-year program leading to the Doctor of Chiropractic degree (offered only in Toronto), followed by a licensing examination conducted by a provincial association or the Canadian Chiropractic Examining Board. Osteopathic physicians must first obtain an undergraduate degree and then train for four years in the United States at a school of osteopathic medicine. Licensing requires a one-year internship in Canada and successful completion of an examination set by the Royal College of Physicians and Surgeons.

Nature of Supply

Other occupations and immigration provide few people to this group, largely because of the specialized licensing requirements. Licensing is usually obtained between the ages of 27 and 34, and retirements do not begin in significant numbers until age 60, for an average career length of 25 to 30 years (although many of these professionals work beyond the normal retirement age). In 1986, the average age of practioners was 40; the percentage of female chiropractors and osteopaths was 16%, in comparison to 13% in 1981. This situation will change in the future, as the percentage of women in training programs in the last few years has been around 30%.

People who enter this field often remain in private practice throughout their career, although both professions offer the opportunity for specialization. Almost one-half of practitioners work in Ontario, partly because Canada's only chiropractic college is located in Toronto.

Market Conditions and Job Prospects

Over the 1980s, employment growth for chiropractors was strong compared to that for the labour force as a whole and for more conventional areas of medical practice. Current projections suggest low employment growth in the years leading to 1995, however; approximately 800 jobs will become available, of which about 17% will be new jobs and the remainder will be replacement openings. The Canadian Chiropractors' Association, on the other hand, expects that the employment growth rate will drop slightly but not to the same extent as projected here.

Unemployment among osteopaths and chiropractors is virtually unknown, primarily because most are self-employed. Career opportunities are determined by enrollment levels at Canada's chiropractic training institution and by the willingness of Canadians to undertake study in the United States. To date, supply and demand in this field have been balanced. In 1986, 20% of chiropractors and osteopaths were working on a part-time basis, compared to 9% in 1981.

1985 Annual Earnings	$	
Lowest 10% of Workers	8,079	or less
Average Worker	43,625	
Highest 10% of Workers	91,201	or more

Source: 1986 Census

For further information, contact:

Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

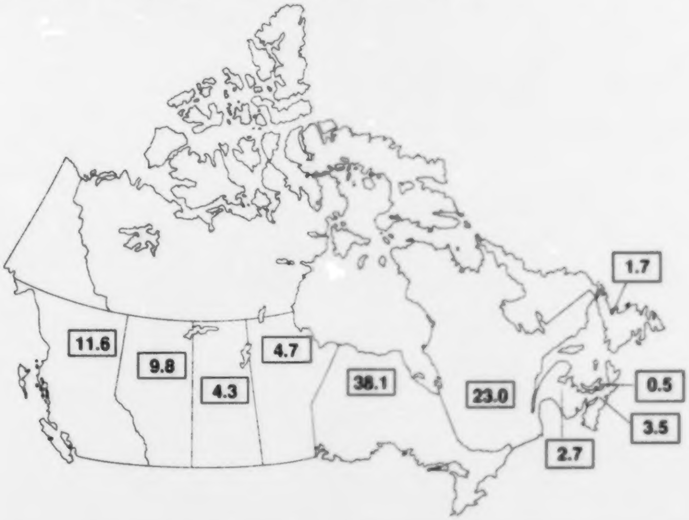
Canadian Chiropractic
Association
1396 Eglinton Avenue West
Toronto, Ontario M6C 2E4
(416) 781-5656

Canadian Osteopathic
Association
575 Waterloo Street
London, Ontario N6B 2R2
(519) 439-5521

Nurses, Registered, Graduate and Nurses-in-Training 3131

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	257,455	5.0	2.7	184,663
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	5	95	15	78	7	62	38
	1986	5	95	10	83	7	58	42
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (96)
- Hospital (74)
- Health and Welfare - Non-Hospital (20)

Public Administration (3)
- Provincial (1)

Nurses, Registered, Graduate and Nurses-in-Training 3131

Job Environment

Most nurses provide and supervise direct patient care. They observe, record and report symptoms and changes in the condition of patients; administer medication as ordered by the physician; give nursing advice and health counselling; supervise the work of nursing assistants; and ensure the comfort of their patients. Nurses work closely with physicians, social workers, physiotherapists, occupational therapists, technicians, nursing assistants and psychologists. Many nurses specialize in a particular type of health care, such as gerontology, chronic-care, surgery, psychiatry, emergency care and intensive care. Although three-quarters of all nurses work in hospitals, many are also employed in nursing homes, rehabilitation and long-term care centres, community health clinics, physician's offices, schools, industries and patients' homes. Prospective nurses must expect weekend and shift work, and rotation through a variety of wards or services.

Educational Background and Skills

In most provinces, nurses must be registered with the provincial licensing body in order to practice. Prerequisite credentials are either a diploma in nursing, granted through a community college or hospital-based program of instruction, or a university degree in nursing. To attain registration, candidates must pass a licensing exam prepared by the Canadian Nurses Association but administered by the provincial regulatory body. The majority of nursing graduates hold college diplomas, but more students now opt for a university degree in nursing. In 1988, 15% of nursing graduates held a bachelor's degree in nursing, the result of initiatives within the profession to raise their status, both educationally and professionally.

Nature of Supply

Nursing allows for a great flexibility in employment, which explains why nurses' careers are often intermittent. They may leave to raise children, study or travel, and then return to work.

Women predominate in this occupation; after a marginal increase during the 1970s, the percentage of men in nursing seems to have stabilized in the 1980s. Most nurses enter active practice before 25, and do not leave the profession permanently in significant numbers until age 60.

Market Conditions and Job Prospects

During the 1980s, the demand for nurses grew at a much faster average rate than for the labour force in general. Recently, many hospitals have been hiring nurses to perform duties formerly performed by nursing assistants, contributing to the rapid growth in employment. Projections to 1995 suggest that demand will continue to surpass employment opportunities in most other fields, although they may not be as strong as earlier. Between 1989 and 1995, about 185,000 nursing positions will become available. One in every four of these will be openings created by expanding demand. The remainder will be openings vacated by existing personnel who leave or retire.

Factors which influence demand include the aging population, the increase in all-nurse hospital staffing, the expanding role of nurses in health care delivery, and increasing technical complexities. Changes in employment are ultimately dependent on expenditures in the health sector. The demand for nurses holding university degrees and trained in specialty areas (such as intensive care, chronic care and surgery) should, however, remain strong. The 1986 census on the career progression of nurses shows that they advance to such positions as nursing supervisors, medical administrators and post-secondary or university teachers.

Current employment prospects for nurses are very positive and the rate of unemployment is low. Shortages exist in several provinces, especially within specialty areas and in more remote regions. These problems are compounded by the fact that other countries actively recruit Canadian nurses. There is an increasing trend towards part-time and casual employment in the nursing field. In 1985, approximately 42% of nurses were employed on a part-time basis, compared to 38% in 1981, much higher than the average for the labour force in general.

Earnings*

Statistics on major provincial settlements, (except for British Columbia and Quebec,) from the Canadian Nurses Association for 1989, reveal that annual salaries for general duty registered nurses ranged from approximately $25,600 in Newfoundland to $38,086 in Ontario. In 1988, statistics on salaries of head nurses available for most provinces, show a range from $26,275 in Prince Edward Island to $39,776 in Alberta. Actual earnings depend upon the employer, the years of experience and the province.

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* Canadian Nurses Association (Annual Salaries and Hourly Rates, Major Hospital Agreements), May 1988 and July 1989.

1985 Annual Earnings	$	
Lowest 10% of Workers	17,273	or less
Average Worker	26,058	
Highest 10% of Workers	33,699	or more

Source: 1986 Census

For further information, contact:

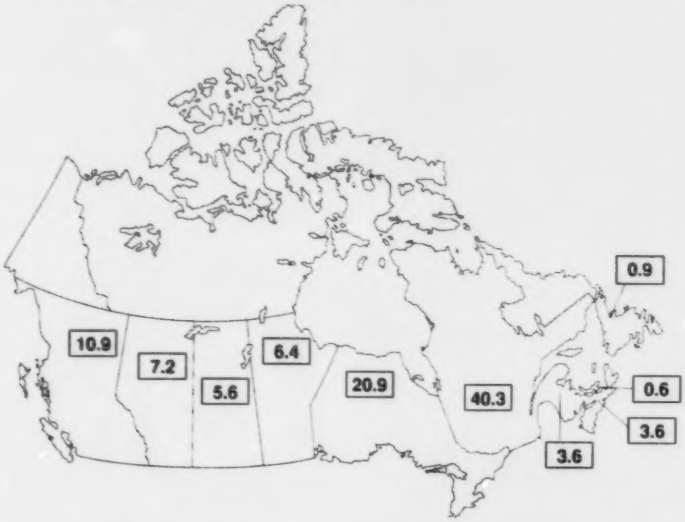
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Canadian Nurses Association
CNA House
50 The Driveway
Ottawa, Ontario K2P 1E2
(613) 237-2133

Orderlies 3132
Nursing Attendants 3135

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	79,644	-0.4	-1.0	34,202
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	21	79	26	61	13	65	35
	1986	22	78	19	70	11	57	43
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (97)
- Health and Welfare - Non-Hospital (51)
- Hospital (42)
- Religion (1)

Public Administration (1)

Orderlies 3132
Nursing Attendants 3135

Job Environment

This occupational group includes personal care aides, nursing aides, health care aides, hospital aides and orderlies. Nursing attendants provide practical nursing care in hospitals and residential health care facilities, and their tasks include answering the patient's call bell, collecting food trays, making beds, bathing patients, giving massages, helping patients in and out of bed, and transporting patients by wheelchair or stretcher. They may take and record temperature, pulse and respiratory rate. Individual duties depend on provincial regulations, the policies of the institution, the type of patient and the skills of the attendant. Orderlies assist nurses with heavy work, such as escorting patients to operating and examining rooms, and transporting and setting up heavy equipment.

Educational Background and Skills

The pre-employment educational requirements in this field vary according to the province and the needs of the employer. Secondary school graduation is often the minimum acceptable level, in which case training is provided on the job under the guidance of an experienced co-worker. Some employers, however, require completion of a relevant post-secondary program of study, available from some community colleges and trade/vocational institutes. Such a program lasts up to one year, and includes both formal classroom instruction and practical clinical training. Admittance may require from Grade 10 up to high-school graduation. Although not always required, vocational preparation is becoming increasingly important for success in this area.

Nature of Supply

In 1985, 81% of nursing attendants were women and 83% of orderlies were men. The average age for both occupations was 37. Most people enter this field before reaching 25, and labour force withdrawals take place between the ages of 24 and 30, and again in the late 50s.

Market Conditions and Job Prospects

During the early 1980s, employment growth for nursing attendants and orderlies declined sharply, and the situation is not expected to improve through to 1995. The 33,300 job openings which should be available for nursing attendants during the projection period will result from vacancies left by nursing attendants withdrawing from the active labour force or moving into other occupations, and not from expansion of demand.

Technological changes that continue to increase the skill level required by nursing attendants, as well as the trend of some hospitals to establish all-nurse hospital staffing, may affect the demand for nursing attendants and orderlies. While primarily employed in hospitals in the past, they are now less in demand in these institutions. Employment in such areas as nursing homes and other long-term care facilities may not make up for job losses in the hospital sector.

Although unemployment among nursing attendants and orderlies remains below that for the labour force as a whole, the situation may worsen during the projection period, given the significant decline in the job opportunities in recent years. In 1985, a high proportion of nursing attendants (44%) worked part-time, although the proportion of orderlies working part-time was substantially lower at 26%.

Earnings

In 1985, most hospital-employed nursing aides earned between $10,802 and $23,250 per year. Nursing orderlies generally earned between $13,513 and $25,532 per year. In both cases, average earnings were around the mid-point of the respective salary range.

1985 Annual Earnings	$	
Lowest 10% of Workers	11,019	or less
Average Worker	17,752	
Highest 10% of Workers	23,433	or more

Source: 1986 Census

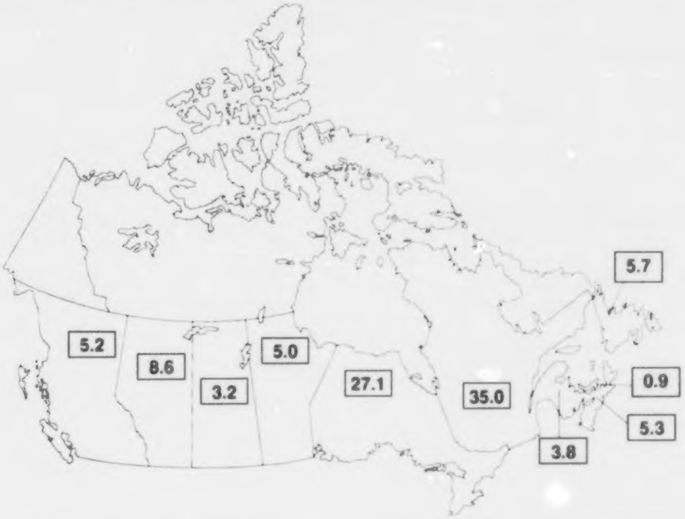
For further information, contact:

Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Registered Nursing Assistants 3134

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	40,600	-1.4	0.9	23,307
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	8	92	22	73	5	64	3[illegible]
	1986	8	92	13	81	6	56	44
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (99)
- Hospital (70)
- Health and Welfare - Non-Hospital (27)

Registered Nursing Assistants

3134

Job Environment

Nursing assistants and practical nurses are employed in hospitals, residential care facilities, occupational health units, public health clinics, doctor's offices and the homes of patients. Typical duties include taking temperatures and blood pressures, giving baths, making beds, serving meals, feeding patients, collecting specimens and administering simple medical treatment. In some jurisdictions they also administer medication. Nursing assistants often work as part of a team including registered nurses, physicians, physiotherapists and occupational therapists. They usually work under the direct supervision of a nurse. Weekend and shift work is normal in this career.

Educational Background and Skills

Employment as a nursing assistant requires graduation from an approved program of studies combining technical instruction and practical experience. These programs usually last a year and are available from community colleges, trade/vocational institutes and some hospitals. Admission requirements vary with the institution, but recommended preparation includes high school courses in basic sciences and mathematics.

Some provinces require nursing assistants to pass an exam and be registered before obtaining employment; where not mandatory, certification and registration may still be required by some employers. Credentials in one province may not necessarily be recognized in another.

Nursing assistants must continually educate themselves about the constant changes in nursing knowledge and technology. They can pursue studies in clinical specialties after completing basic training, but they usually only do so after having acquired some nursing experience.

Nature of Supply

The main source of supply are graduates who hold related trade/vocational institute certificates. The remainder have received additional instruction in other nursing areas, other health disciplines or in related fields, such as social services, social work or psychology.

Women account for 92% of nursing assistants. The average age in 1986 for nursing assistants was 36, slightly higher than the 1981 average. Most nursing assistants begin their careers between the ages of 20 and 24 and often work intermittently thereafter, taking time off to raise children or study. In 1986, almost 35% of nursing assistants worked in Quebec and approximately 27% in Ontario.

Market Conditions and Job Prospects

Employment opportunities in this field declined throughout the 1980s, as the growing complexity of standard nursing care and the increasing acuity of illness of hospital patients led to the replacement of many nursing assistants with nurses in some hospitals. Between 1981 and 1986, the proportion of nursing assistants working in hospitals decreased by 17%. About 27% of nursing assistants are now working in other extended care facilities such as nursing homes.

Job prospects will improve over the projection period, although growth will still remain inferior to the average for all occupations. About 2,400 new employment positions will open up in this field between 1989 and 1995, and a further 21,000 openings will result from currently employed nursing assistants leaving the active work force.

Unemployment among nursing assistants is traditionally lower than average although job vacancies also appear to be relatively scarce. Part-time employment in the field is high (44%).

1985 Annual Earnings	$	
Lowest 10% of Workers	13,666	or less
Average Worker	19,587	
Highest 10% of Workers	24,952	or more

Source: 1986 Census

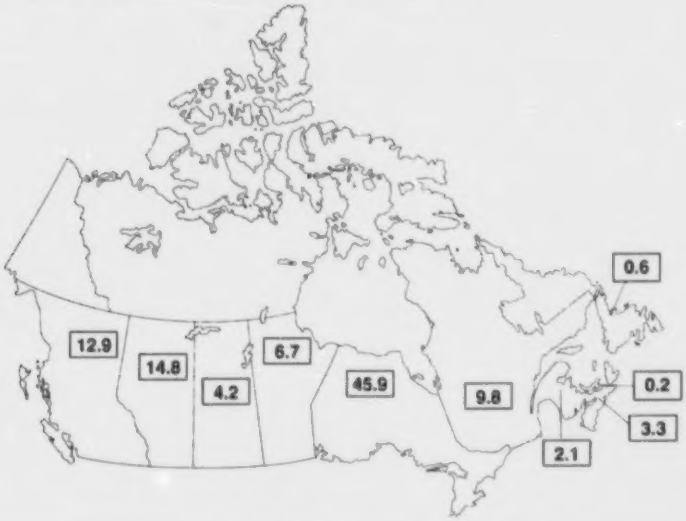
For further information, contact:

Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Audiologists and Speech-Language Pathologists 3136

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,264	6.9	4.5	2,876
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	14	86	14	84	2	83	17
	1986	13	87	10	85	5	75	25
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (90)
- Education (31)
- Hospital (30)
- Health and Welfare - Non-Hospital (28)

Public Administration (8)
- Provincial (5)
- Municipal (4)

Audiologists and Speech-Language Pathologists

3136

Job Environment

Audiologists diagnose, evaluate and treat hearing disorders and conduct research related to hearing. Their responsibilities include administering audiometric tests and examinations to diagnose hearing impairment, planning and implementing rehabilitation programs (e.g., selecting and fitting hearing aids), and teaching medical interns and audiology students. Speech-language pathologists diagnose, evaluate and treat speech, language, voice and stuttering disorders and conduct related research. They administer tests and observe their patients in order to arrive at a diagnosis, plan individual or group therapy, conduct remedial programs, provide speech training, and counsel language-handicapped individuals and their families. In planning a treatment program audiologists and speech-language pathologists may work as members of a team that can include nurses, physicians, psychologists, social workers, educators and other therapists. Audiologists usually work in hospital laboratories, although some find employment in community health agencies and the school system. Speech-language pathologists are evenly distributed among school boards, hospitals and community-based agencies. Increasingly, audiologists and speech-language pathologists are operating private practices.

Educational Background and Skills

The minimum requirement for certification and employment as an audiologist is a master's degree in audiology. Certification and employment as a speech-language pathologist requires the completion of a bachelor's degree in speech-language pathology, although most employers prefer to hire individuals at the master's level, and in 1991 the master's degree will become a minimum requirement for certification. The prerequisite for graduate training in either field is generally a bachelor's degree in communication disorders or in another field with a strong grounding in psychology, linguistics, statistics, or the physical or social sciences. Manitoba is the only province which requires licensing in this field.

Nature of Supply

The formal education system is the major source of audiologists and speech-language pathologists in Canada, with immigration adding a significant contribution. In 1986, approximately 87% of audiologists and speech-language pathologists were women. The proportion of this work force over 54 years of age is less than half the average, reflecting a rapid expansion in employment opportunities in this field. In most provinces, the supply of audiologists and speech-language pathologists has not kept pace with the rising demand for qualified personnel, with shortages most prevalent in rural areas. In 1986, 25% of people in this occupation worked part-time.

Market Conditions and Job Prospects

Employment growth for audiologists and speech-language pathologists was for above the all-occupation average throughout the 1980s and is expected to continue to be very high until at least 1995. During the next six years approximately 3,000 jobs will become available, of which about 1,000 will be new positions; the remaining posts will come open as individuals retire from active practice. These figures may be revised upwards, however, since the increasing screening of pre-school and school-age children for speech, language and hearing disorders, as well as the growing integration of handicapped children into the school system, could increase the demand for audiologists and speech-language pathologists. These pressures on employment could be offset, however, by increasing the use of rehabilitation aides.

Earnings

Audiologist and speech-language pathologist earnings vary considerably, depending on the institution, province and city of employment, and on the field of therapy, hours of work, and years of experience and education. In 1988, non-union speech-language pathologists in Saskatchewan earned between $33,600 and $40,308 per annum, with an average rate of $36,184 (Saskatchewan Human Resources, Labour and Employment, 1988). Annual salaries for vacant positions listed with the Ontario Association of Speech-Language Pathologists and Audiologists in October 1989 ranged from $31,000 to $52,166.

1985 Annual Earnings	$	
Lowest 10% of Workers	21,838	or less
Average Worker	31,492	
Highest 10% of Workers	40,511	or more

Source: 1986 Census

For further information, contact:

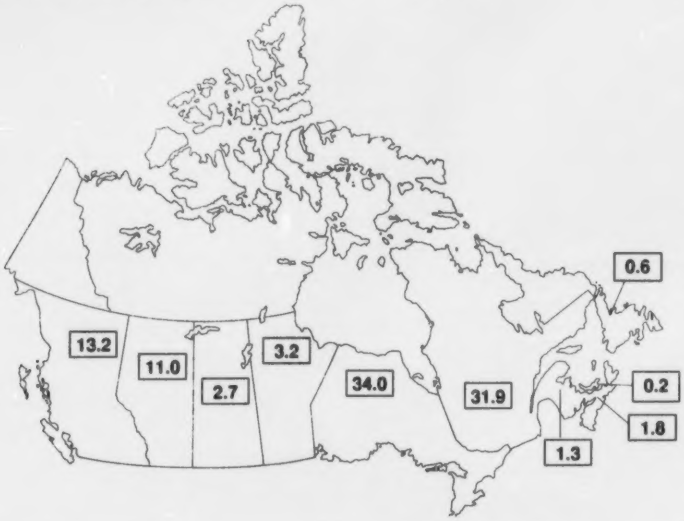
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Canadian Association of Speech-Language
Pathologists and Audiologists
Suite 1215, 25 Main Street West
Hamilton, Ontario L8P 1H1
(416) 523-5790

Physiotherapists 3137

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%)		Number of Job Openings 1989 - 1995
		Actual 1981 - 1989	Projected 1989 - 1995	
This Occupation	13,570	6.3	3.7	10,983
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	17	83	20	74	6	72	28
	1986	16	84	13	81	6	69	31
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (97)
- Hospital (56)
- Health and Welfare - Non-Hospital (36)
- Education (3)

Public Administration (3)
- Provincial (2)

Physiotherapists

3137

Job Environment

Physiotherapists plan and carry out treatment programs to maintain, improve or restore physical functioning in patients. Their duties include assessing a patient's physical abilities, planning and implementing the treatment program, maintaining clinical and statistical records, and developing and implementing educational programs for both staff and the community.

Physiotherapists may specialize in such areas as neurology, rheumatology, orthopedics, obstetrics, pediatrics, cardiovascular disorders or sports physiotherapy. They may also specialize in research or consultation.

While individual physiotherapists may plan and implement a treatment program, they usually work as members of a health care team with other therapists, nurses, physicians, psychologists, social workers or educators. Most work in hospitals, but some practice in the patient's home, a rehabilitation centre or a community ambulatory clinic. Many physiotherapists are beginning to opt for private practice.

Educational Background and Skills

Employment and licensing require the completion of a three or four year bachelor's degree in physiotherapy, incorporating both formal classroom learning and supervised clinical practice. Licensing is mandatory in several provinces. Programs of advanced study are available for those physiotherapists who want to specialize.

Nature of Supply

The primary source of physiotherapists in Canada is the formal education system, although foreign physiotherapists account for a high proportion of labour market entrants. Approximately 84% are women, a marginal increase over five years ago. This proportion is expected to change because Canadian schools of rehabilitation are graduating more men than in the early 1980s. This workforce is very young with almost 74% less than 40 years old in 1986, a reflection of recent education program expansions and strong demand growth. Some 31% of Canada's physiotherapists work part-time.

Market Conditions and Job Prospects

Employment rose by more that 35% between 1981 and 1986, a growth rate that was approximately six times higher than that of the Canadian labour force as a whole. Moderation in growth is expected, although it will remain significantly above the all-occupation average. Over the projected period, at least 3,300 new positions will become available in Canada. An additional 8,000 retirements will create a demand for 11,000 new physiotherapists, representing a high rate of recruitment.

Jobs are little affected by economic conditions. However, current trends in health care may change the projected figures. Increasingly, rehabilitation is recognized as a practical and moral alternative to institutionalized care, creating more demand for physiotherapists. The rising elderly population and increasing public acceptance of disabled persons also influences the need for these professionals. Current pressures on the demand for physiotherapists could be relaxed somewhat as discussions are now underway to enhance both the role and acceptance of rehabilitation aides. Government policy concerning expenditure in the health care sector is also a limiting factor.

Employment prospects are very good as there is currently a national shortage of physiotherapists. Unemployment is extremely low, with only 3% of the 1986 labour force actively searching for work. This situation is not expected to change through the projection period, but the expansion of educational programs may alleviate the shortages somewhat.

Earnings

Earnings vary considerably depending on the setting of the practice, union status, province and city of employment, hours of work and years of experience. In 1989, non-federal government physiotherapists' salaries ranged between $30,003 and $38,649 per annum, with the annual average being $34,312 (Pay Research Bureau, 15 August 1989). Supervisory salaries ranged between $36,218 and $50,035 per year, with an average of $42,629.

1985 Annual Earnings	$	
Lowest 10% of Workers	17,872	or less
Average Worker	27,776	
Highest 10% of Workers	36,868	or more

Source: 1986 Census

For further information, contact:

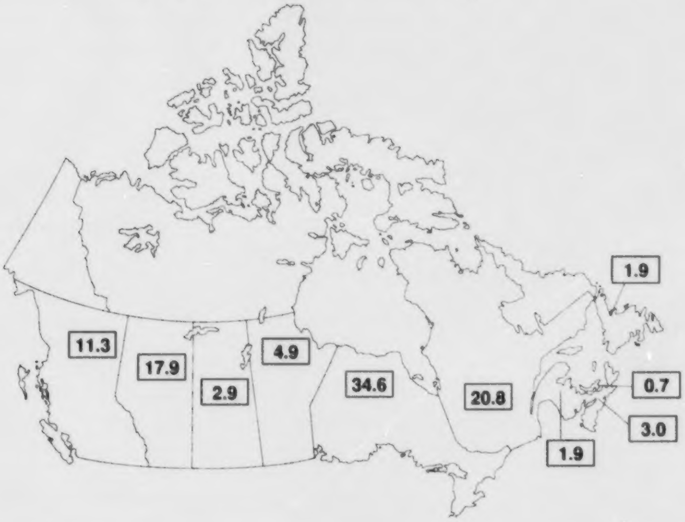
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Canadian Physiotherapy Association
890 Yonge Street, 9th Floor
Toronto, Ontario M4W 3P4
(416) 924-5312

Occupational Therapists 3138

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,316	7.7	4.7	5,657
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	13	87	26	67	7	81	19
	1986	13	87	18	76	6	75	25
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (93)	Public Administration (6)
- Hospital (61)	- Provincial (5)
- Health and Welfare - Non-Hospital (30)	- Municipal (1)

Occupational Therapists

3138

Job Environment

Occupational therapists plan and implement rehabilitation programs for people with physical or mental disabilities. Their responsibilities include assessing the emotional and physical capacities of patients, developing, implementing and evaluating treatment programs, and maintaining clinical and statistical records. Treatment involves encouraging patients to undertake day-to-day activities, self care, creative tasks, and recreational activities or to develop industrial or vocational skills. Occupational therapists also conduct research, act as consultants and educators, and supervise auxiliary personnel. They may specialize in such areas as vocational rehabilitation, psychiatry, rheumatology and chronic care.

While most occupational therapists work in hospitals and other treatment centres, increasing numbers are finding employment in community settings such as schools and industry, and in private practice.

Educational Background and Skills

Entry to the field of occupational therapy requires the successful completion of a bachelor's program in occupational therapy which includes a period of supervised clinical practice. Licensing or certification is necessary for professional practice in most Canadian provinces. In some provinces employers require membership in the Canadian Association of Occupational Therapists as a condition of employment.

Nature of Supply

The formal education system is the major source of occupational therapists in Canada. Immigration is also a significant source of supply, although not as much as in other rehabilitation professions.

In 1986, 87% of Canada's occupational therapists were women. This level is unchanged from that of five years earlier, although currently available information suggests that it may begin to fall in the years to come. The average age of occupational therapists is 33 years, and almost 80% of this work force is aged 39 years or less; the relative youth of this group reflects a recent expansion of education programs and strong demand for therapists' services.

Market Conditions and Job Prospects

The pace of job growth in this field was far above the average throughout the 1980s. Although this rate is projected to fall in the next few years, it is likely that the projections will underestimate actual increases. Between 1989 and 1995 at least 6,000 more occupational therapists will be required by the labour market, approximately 65% of whom will fill employment positions left vacant by retirees. The remainder will fill new employment positions created by an expanding demand for their services. This represents a very high recruitment rate.

Job growth in this field is not notably influenced by economic conditions, although current trends in health care may boost employment as rehabilitation gains increasing acceptance as a practical alternative to institutionalized care. A rising elderly population and increasing attention to the needs of disabled persons will further raise the demand for occupational therapists. Demand pressures could be relaxed somewhat by the increased use of rehabilitation aides and government fiscal restraint in health care budgets.

Employment prospects for occupational therapists are currently very good. This occupation has been experiencing labour shortages which are expected to persist until at least the mid-1990s, although an anticipated expansion of provincial educational programs may help improve the situation. Unemployment was extremely low in 1986, with only 3% of the labour force actively searching for work. Three of every four occupational therapists are employed on a full-time basis.

Earnings

Occupational therapists' earnings vary considerably, depending on the institution, province and city of employment, union status, hours of work, and years of experience. Occupational therapists employed by private and non-federal public institutions earned between $29,969 and $48,226 per annum in 1989 (Pay Research Bureau, 15 August 1989). The average salary for general practice was $34,135, while those for assistant supervisor and supervisor positions were $38,369 and $44,075, respectively.

1985 Annual Earnings	$	
Lowest 10% of Workers	17,792	or less
Average Worker	25,542	
Highest 10% of Workers	33,685	or more

Source: 1986 Census

For further information, contact:

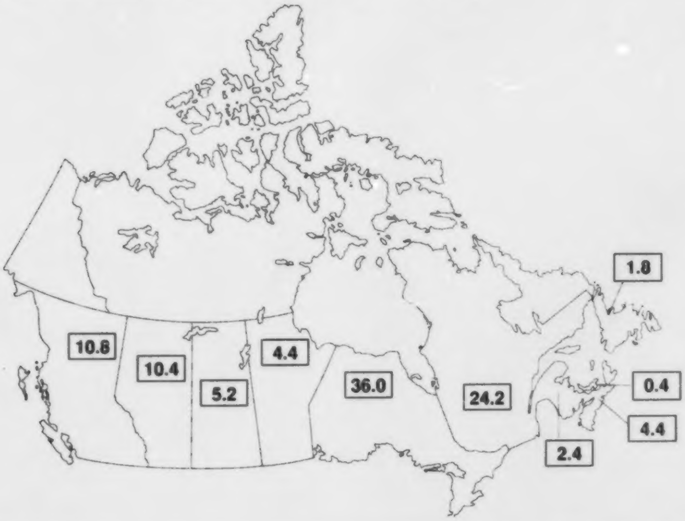
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Canadian Association of Occupational Therapists
3rd Floor, 110 Eglinton Avenue West
Toronto, Ontario M4R 1A3
(416) 487-0480

Pharmacists 3151

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	18,979	3.7	2.5	8,570
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	59	41	10	72	18	81	19
	1986	50	50	9	76	15	79	21
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (78) - Retail (77)	**Services** (21) - Hospital (20) - Health and Welfare - Non-Hospital (1)

Pharmacists

3151

Job Environment

In 1986, most pharmacists worked in either retail (77%) or hospital pharmacies (20%). Their duties include monitoring drug therapy to ensure proper dose and to prevent drug interactions, counselling patients on proper drug use and providing pertinent information on drugs to both patients and health care providers. As well as being involved in managing pharmacy operations, they also ensure that the drugs are properly prepared, dispensed, stored and handled, and keep proper records. Others may work in non-hospital health care services, the wholesale trade, pharmaceutical industries or government administration. Activities in these areas include drug inspection, research, marketing, sales, administration and teaching.

Educational Background and Skills

Pharmacists must be licensed in order to practice in Canada. For this they need a four-year bachelor's degree in pharmacy. In most provinces, regulatory agencies require candidates to pass an exam set by the Pharmacy Examining Board of Canada and to have some practical training before being licensed. Also, most provinces require pharmacists to complete continuing-education programs each year as part of their yearly licence renewal. Pharmacists who own or manage a retail or hospital pharmacy must also have management and supervisory skills.

Nature of Supply

Pharmacy school graduates are the major source of pharmacists in Canada. Other sources such as the military, immigrants and re-entrants from the household sector are of little significance. Because of the educational requirements, there is little flow of workers into pharmacy from other occupations. Pharmaceutical training and practice can lead to related careers in research, education, sales and administration, but success in these fields may require advanced or specialized instruction. The number of women remained fairly stable throughout the 1980s, although significant increases had been reported between 1970 and 1979. By 1986, one-half of Canadian pharmacists were female. Most pharmacists are licenced between the ages of 22 and 29, and do not start to leave professional practice until age 50 or later. This could be through retirements or, more probably, movements into related employment fields. As with most other health care occupations, pharmacists are not concentrated in any specific geographic region. Currently, several provinces are reporting shortages in hospitals and in non-metropolitan communities. Recent difficulties in hiring have been reported by retail pharmacies in some urban centres, particularly in Ontario.

Market Conditions and Job Prospects

During the 1980s, the number of pharmacists employed in Canada rose almost 4% per year, significantly above the all-occupation average for the same period. While employment growth is expected to moderate somewhat during the projection period, it will remain higher than the norm. Almost 8,600 pharmacist jobs will open, with about 36% resulting from increased demand for services. The remainder will be replacement openings. Employment demand is moderately affected by economic conditions. Structural and environmental changes taking place in the practice of pharmacy may influence employment growth. The role of the pharmacist in hospitals is expanding, a trend which could increase demand, while on the other hand increasing employment of pharmacy dispensary assistants could lessen the demand.

Unemployment among pharmacists is very low, primarily due to the large number who are self-employed. Conversely, job vacancies are high relative to the size of this labour force, supporting the shortage mentioned earlier. Whether this shortage persists depends in part on trends discussed above. In 1981, approximately 79% of pharmacists were employed full-time.

Earnings

In general, pharmacists in the retail sector earn a higher income than do their counterparts in hospitals. Pharmacists' salaries vary considerably from province to province. Specific information on incomes can be obtained by contacting the pharmacist association in each province. Pharmacists employed by the federal public service in an advisory or regulatory function earn between $20,755 and $60,653 per annum. Mid-level annual incomes range between $43,963 and $51,044. Pharmacists employed by the federal government in dispensing drugs earn between $27,341 and $48,046 per annum. Middle-level salaries in this category range between $33,949 and $42,085 (Pay Research Bureau, September 1989).

1985 Annual Earnings	$	
Lowest 10% of Workers	17,491	or less
Average Worker	35,106	
Highest 10% of Workers	50,260	or more

Source: 1986 Census

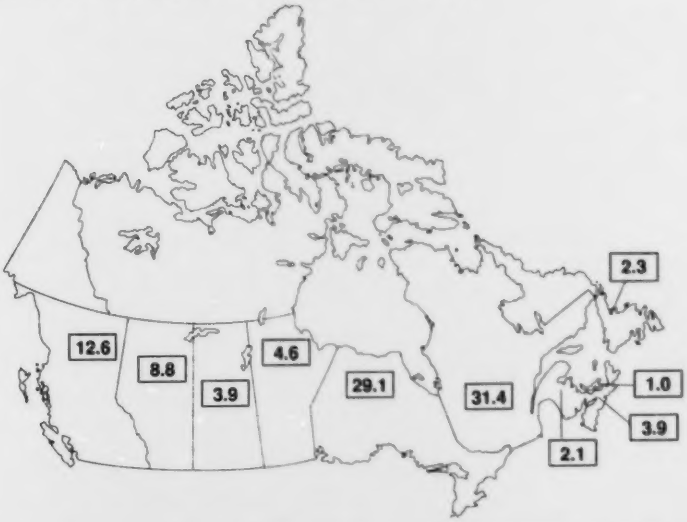
For further information, contact:

Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Dietitians and Nutritionists 3152

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,927	5.6	4.0	2,749
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	6	94	17	78	5	70	30
	1986	4	96	12	83	5	65	35
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (91)
- Hospital (64)
- Health and Welfare - Non-Hospital (16)
- Accommodation & Food (4)

Public Administration (5)
- Provincial (2)
- Federal (2)
- Municipal (2)

Manufacturing (2)
- Food & Beverages (2)

Dietitians and Nutritionists

3152

Job Environment

Dietitians and nutritionists have a variety of responsibilities, which may include consulting and lecturing on nutrition; planning menus and diets; developing, administering and supervising institutional food service programs; teaching medical students; conducting research; and developing computer programs for administrative and clinical purposes. Usually, dietitians work in health-care and related facilities, although an increasing number are self-employed consultants. Some are employed in the education, government and manufacturing sectors.

Educational Background and Skills

Dietitians require a bachelor's degree in dietetics, nutrition or food administration, one year of a dietetic internship and two years of supervised practice; a graduate degree with a demonstrated level of competence is also acceptable. Dietitians must be certified with the Canadian Dietetic Association or a provincial counterpart, and in some provinces, public health nutritionists must hold a master's degree. The growing use of computers in hospitals has made computer skills increasingly necessary in this field.

Nature of Supply

In 1986, 96% of dietitians and nutritionists were women, virtually the same proportion observed a decade earlier. The average age was 34, slightly above the 1981 average of 31. Most people enter this occupation between the ages of 25 and 29. Most employment opportunities are in hospitals and other health-care facilities in urban areas.

Market Conditions and Job Prospects

Employment growth in this field was almost four times the average throughout the 1980s, and the job outlook over the projection period is very positive. More than 1,300 new positions will be created during the next six years, and a further 1,500 openings will result from personnel withdrawing from active employment.

Employment demand in this field is not significantly influenced by economic factors or technological improvements. Changes currently taking place in health care administration, however, could affect both overall demand and specific skill requirements. More and more hospitals are centralizing their food supply, and there is a rising demand for specialists in critical care areas. Furthermore, an emphasis on outpatient and ambulatory patient care is increasing the need for dietitians and nutritionists trained to work in the community, particularly in rural areas.

Unemployment in this field is currently less than the average for all occupations, and part-time employment is quite common: in the 1986 census, almost 35% of dietitians and nutritionists were working part-time.

1985 Annual Earnings	$	
Lowest 10% of Workers	18,962	or less
Average Worker	29,453	
Highest 10% of Workers	39,030	or more

Source: 1986 Census

For further information, contact:

Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

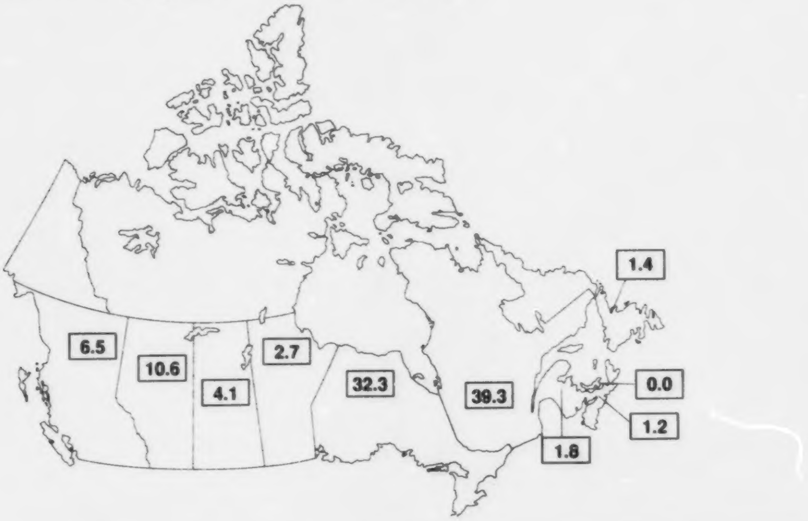
Canadian Dietetic Association
Suite 601, 480 University Avenue
Toronto, Ontario M5G 1V2
(416) 596-0857

Optometrists

3153

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	2,809	3.4	1.9	1,033
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	83	17	8	68	24	93	7
	1986	69	31	6	72	22	87	13
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (98)
- Health and Welfare - Non-Hospital (96)
- Education (1)

Trade (2)
- Retail (2)

Optometrists

3153

Job Environment

Optometrists examine patients' eyes to determine visual efficiency, and prescribe treatment (excluding drugs or surgery) to correct vision or ocular disorders. They analyze vision through a series of tests with sophisticated instruments and, depending on their findings, refer patients to medical practitioners such as ophthalmologists, prescribe and fit corrective lenses such as eyeglasses and contact lenses, or recommend eye exercises. Optometrists also advise or counsel patients on such questions as contact lens care, visual hygiene, lighting arrangements and visual safety. Most optometrists operate a complete vision care service by supplying the materials used in their own prescriptions and usually work alone in private practice, although group practice is becoming increasingly popular. Employment opportunities also exist in optometry clinics, community health centres, and in consulting work for government and industry.

Educational Background and Skills

Entry to this field is restricted to graduates of a recognized university school of optometry. Candidates for professional programs must have a high school diploma with emphasis on the basic sciences and mathematics, as well as one to three years of university-level study with concentration in the sciences. Doctor of optometry degrees can be earned at two universities (in Kitchener and Montreal), and require four to five years of full-time study combining clinical experience with classroom instruction. Registration with a provincially designated professional regulatory agency is a mandatory condition of practice in every province, and often requires candidates to pass a licensing exam. The field of optometry is changing rapidly and requires practicing optometrists to educate themselves continually.

Nature of Supply

The formal education system is the major avenue of entry into optometry. Canadian schools of optometry graduate an average of 100 individuals per year.

Most optometrists enter active practice between the ages of 25 and 29 years. A small number retire in their late 40s, perhaps reflecting movements into such related fields as research, teaching and public health. In 1986, more than 30% of optometrists were women, a marked increase over the proportion of five years earlier. This trend is expected to continue, since more than 50% of graduates from Canadian schools of optometry today are women.

Market Conditions and Job Prospects

During the early 1980s, employment growth for optometrists averaged approximately 5% per year, significantly above the all-occupation average. Since 1985, this pace has moderated, but it is still expected to surpass that for all occupations between 1989 and 1995. During this period, about 1,000 jobs will become available in this field. Approximately 350 of these openings will be the consequence of increasing demand for optometrist services; the remainder will result from currently employed optometrists withdrawing from the active workforce.

Unemployment among optometrists is virtually non-existent, and this is partly attributed to the high number of self-employed professionals. A high proportion of optometrists (87% in 1986) are employed full-time, although this proportion has been declining, which is typical for the labour force as a whole.

Technological change should have little effect on the demand for optometrists or the skills required for practice. Positive influences on employment demand are an aging population, rising awareness of the importance of early vision care, and, increasingly, the inclusion of vision care in health care plans.

Earnings

In most provinces, optometrist services are covered by medical insurance programs. This plays an important role in salary levels, as do fee schedules, hours and location of practice, years of experience and patient population. There is often a significant gap in income between optometrists setting up a practice and those who are more experienced. Three provincial optometrists' associations reported the following 1987 average earnings:

Alberta	$75,652 - $81,124
Saskatchewan	45,000 - 55,000
Ontario	50,000 - 75,000

1985 Annual Earnings	$	
Lowest 10% of Workers	10,093	or less
Average Worker	34,617	
Highest 10% of Workers	71,893	or more

Source: 1986 Census

For further information, contact:

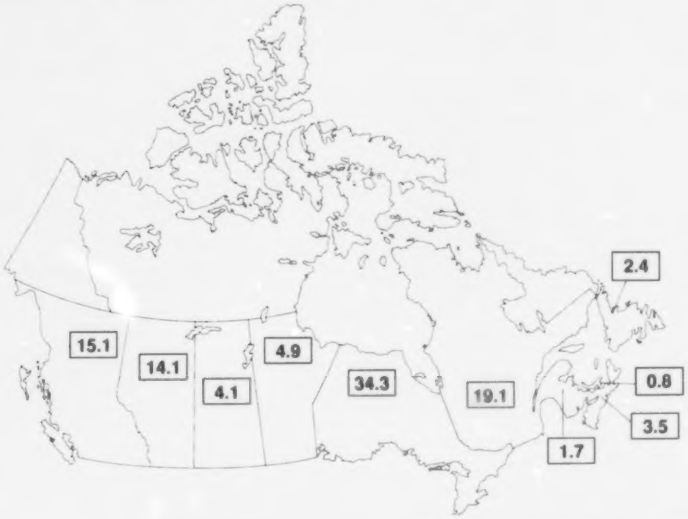
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

The Canadian Association of Optometrists
Suite 301, 1785 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
(613) 738-4412

Dispensing Opticians 3154

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,760	4.4	3.3	1,983
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	60	40	21	70	9	89	11
	1986	53	47	17	74	9	86	14
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (59)
- Retail (57)
- Wholesale (1)

Services (29)
- Health and Welfare - Non-Hospital (28)

Manufacturing (12)
- Miscellaneous (12)

Dispensing Opticians

3154

Job Environment

Dispensing opticians order, fit and adapt ophthalmic devices (such as eyeglasses, contact lenses and magnifiers) according to the instructions of an ophthalmologist or optometrist. Their responsibilities include checking prescriptions, using optical instruments to obtain eye measurements (such as curvature), assisting customers with the selection of frames, providing advice concerning lenses, ordering prescriptions from an optical laboratory, verifying lens accuracy and modifying frames to ensure proper fit. They also instruct customers in the proper techniques of contact lens use and care. Most dispensing opticians are employed by optical retail outlets, although a small percentage are self-employed. In 1986, 57% of dispensing opticians worked in retail trade, which has recently witnessed growth in the franchising of optical services. The health care sector accounted for 28% employment, and the manufacturing industry 12%.

Educational Background and Skills

In all areas of the country except British Columbia and the two territories, dispensing opticians must be registered with the appropriate provincial board of ophthalmic dispensers before obtaining employment. The requirements for registration usually include high-school graduation with a background in mathematics and physics, and completion of an approved post-secondary course in ophthalmic dispensing. In most provinces, courses consist of a two-to-four year correspondence program offered by the Canadian Guild of Dispensing Opticians. Course participants work as registered students under the supervision of a qualified optician. In Ontario and Quebec, additional professional training is available at community colleges and CEGEPs. This takes this form of full-time programs incorporating formal, classroom-based learning and a supervised practice period. These programs are generally two years in length, but a three-year part-time evening program is also available in Ontario. Upon graduation, registration and licensing are determined by a qualifying examination.

Nature of Supply

In 1986, 47% of ophthalmic dispensers were women, more than twice the proportion reported in 1971. The average age (36) was much higher than that of five years earlier. Most dispensing opticians enter the field between the ages of 21 and 26, and many continue to practice into their 60s and 70s. There are a few early retirements from this occupation, as some dispensing opticians move into related positions, such as supervisor or representative for an ophthalmic supplier. Most employment opportunities are in large urban areas.

Market Conditions and Job Prospects

Although the rate of employment growth for dispensing opticians is expected to decline somewhat in future, it should continue to surpass that of the workforce as a whole. Approximately 2,000 jobs will become available in this field between 1989 and 1995, slightly more than one-half of which will be new positions, while the remainder will be openings created as opticians retire from active practice. This comparatively low level of labour force withdrawal suggests a high degree of career satisfaction in this field.

Employment for opticians is only moderately sensitive to economic conditions. Demand for opticians' services will be boosted by the ageing of the Canadian population, expanded testing of children, and a trend toward the purchase of more than one pair of corrective lenses. It will also be influenced by growing trend towards coverage under private insurance plans, and by the increasing involvement of optometrists and opthalmologists in dispensing services. Technological change is not expected to have a significant impact on work in this field.

Current employment prospects for dispensing opticians are extremely favourable. Unemployment is low relative to that for the labour force as a whole, although it is somewhat higher today than it was in the early 1980s. In 1986, approximately 14% of dispensing opticians were employed on a part-time basis. This proportion was higher than that of five years earlier although significantly below the all-occupation average.

1985 Annual Earnings	$	
Lowest 10% of Workers	12,706	or less
Average Worker	22,981	
Highest 10% of Workers	34,561	or more

Source: 1986 Census

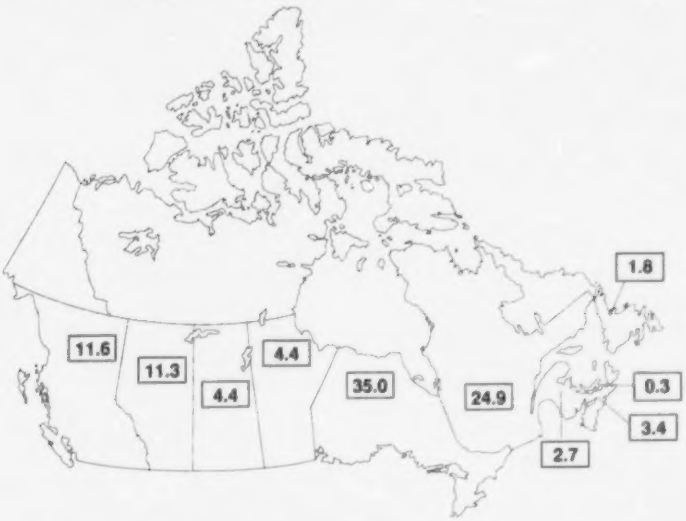
For further information, contact:

Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Medical Radiation Technologists 3155

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	10,359	1.5	2.1	7,416
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	20	80	23	73	4	75	25
	1986	17	83	16	81	3	72	28
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (98)
- Hospital (75)
- Health and Welfare - Non-Hospital (21)

Public Administration (1)

Medical Radiation Technologists

3155

Job Environment

Medical radiation technologists employ radioactive chemicals and equipment for diagnostic and therapeutic purposes. Specialists in this field include nuclear medicine technologists, diagnostic radiographers and radiation therapy technologists. Technologists in nuclear medicine use measured doses of radioactive materials to carry out tests on patients. Radiographers take and process X-ray images. Radiation therapy technologists administer ionizing radiation to treat such diseases as cancer. Medical radiation technologists work under the direction of a specialized physician, generally in a hospital setting, although some opportunities exist for medical radiation technologists in clinics and private offices. The comfort and safety of their patients are the responsibility of all technologists in this field.

Educational Background and Skills

Entry into these occupations requires completion of a minimum 22-month program of study, available through some technical institutes, community colleges and hospitals. In all programs, the curriculum combines both theoretical and practical training. The general standard for program entry is secondary school graduation, preferably with a background in the basic sciences. Upon completion of post-secondary training, graduates may write a national certification exam, specific to their specialty. Although this is mandatory in only a few provinces, it may be required by some employers. Advanced and continuing education opportunities are available in this field.

Nature of Supply

The regional distribution of medical radiation technologists is similar to that of the population as a whole. Since most professionals are employed in hospitals, employment opportunities are best in urban areas. Most of these technologists enter practice between 20 and 25 years of age. In 1986, 83% of medical radiation technologists were women.

Market Conditions and Job Prospects

In recent years employment in this field grew at a rate marginally below that for all occupations. In the period leading up to 1995, rates of employment increase are expected to be moderate but above that for all occupations, and should equal the outlook for the health services sector. During this period, approximately 7,400 job openings will be created, of which 19% will be generated by an expanding demand for the services provided by medical radiation technologists. The rest will be from vacancies left by medical radiation technologists withdrawing from the active workforce.

Technological innovation could enhance demand by increasing the level of specialization required in this field. As in other health-related occupations, employment for medical radiation technologists will likely improve as the population of Canada ages.

Employment prospects in this field are good. The rate of unemployment is low by current standards, and there are a high number of job vacancies compared to the number in the labour force in general. At the time of publication, shortages were being reported only in Ontario, but a nation-wide lack of ultra-sound technicians also exists. Employment in this field is largely independent of business and economic conditions, although it is strongly influenced by government policy. More than one-quarter of medical radiation technologists are employed on a part-time basis. This is high in relation to the proportion of part-time workers in the labour force overall.

Earnings

Annual salary ranges for general medical radiation technologists employed by the federal government (Pay Research Bureau, September 1989) begin at $27,391 and go up to $37,422, while senior-level jobs range from $45,841 to $54,076.

1985 Annual Earnings	$	
Lowest 10% of Workers	18,608	or less
Average Worker	27,434	
Highest 10% of Workers	35,676	or more

Source: 1986 Census

For further information, contact:

Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

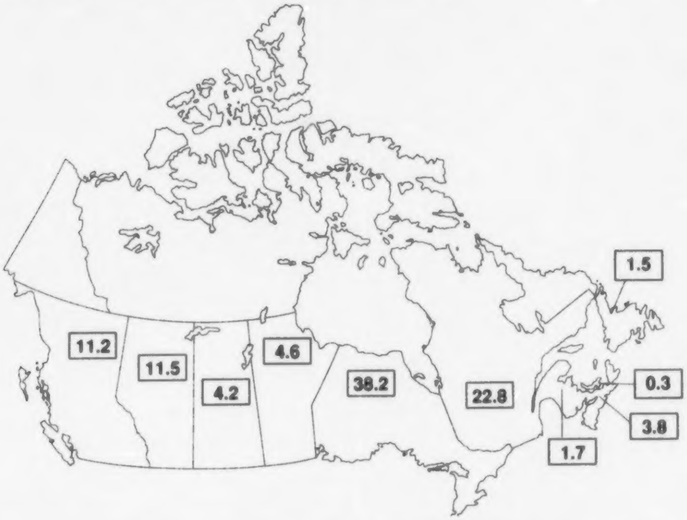
Canadian Association of Medical
Radiation Technologists
Suite 601, 294 Albert Street
Ottawa, Ontario K1P 6E6

Medical Laboratory Technologists

3156

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	42,186	3.2	1.8	29,092
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	22	78	23	72	5	84	16
	1986	22	78	16	79	5	79	21
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (87)
- Hospital (57)
- Health and Welfare - Non-Hospital (23)
- Education (6)

Public Administration (4)
- Provincial (2)
- Federal (2)

Manufacturing (4)
- Chemicals & Chemical Products (2)

Medical Laboratory Technologists

3156

Job Environment

Medical laboratory technologists collect samples from patients, conduct tests, microscopic examinations, experiments and chemical analyses on blood, tissues, cells and other samples to assist doctors in the diagnosis, treatment and prevention of diseases, and set-up, clean and maintain laboratory equipment.

These technologists may specialize in such areas as biochemistry, cytotechnology, haematology, immunology and microbiology. They are employed in hospitals, clinics, private medical laboratories, government, industry and universities.

Educational Background and Skills

Medical laboratory technologists require an undergraduate degree in science or community college/vocational institute training in this field. Programs in medical laboratory technology offered by colleges and institutes of technology generally combine theoretical and laboratory studies with a year of supervised clinical practice; they can be completed within two to four years. Technologists may register with the Canadian Society of Laboratory Technologists upon passing a national certification exam, although this is not mandatory for employment. Membership in the CSLT has grown steadily over the years and now exceeds 22,000. Certification as a Subject or Advanced Subject Registered Technologist is possible for technologists who are specialized.

Nature of Supply

Although the primary source of medical laboratory technologists is the community college, substantial numbers enter the occupation from related university fields. Women's share of this workforce has remained at 78% since 1971. In 1986, the average age of medical laboratory technologists was 34. Most technologists are employed in hospitals, but more and more are working in other settings such as medical clinics and departments of public health. Employment opportunities are primarily limited to urban areas. Most people in this field begin active practice between the ages of 20 and 24, and many begin to leave the profession in significant numbers during the child-bearing years and after age 54. The average career length is approximately 30 years.

Market Conditions and Job Prospects

Major breakthroughs in diagnostic technologies over the past two decades have boosted employment growth for medical laboratory technologists. Growth is expected to be slower in the years leading up to 1995, and should approximate the all-occupation average. About 29,000 new medical laboratory technologists will be required over the projection period, only 17% of whom will be filling new positions. Over eighty percent of these will be replacing persons leaving the occupation to pursue other careers or retiring from the labour market. The Canadian Society of Laboratory Technologists, however, does not expect its members to leave the occupation in these numbers.

Job prospects for medical laboratory technologists are good at the present time and are expected to remain so. Unemployment is low compared to that of the labour force in general. Approximately 20% of those working in this field do so part-time, a figure which is close to the all-occupation average.

Technological advances have had a significant impact on this occupation. The availability and increased use of portable laboratory analytical instruments, combined with the increase of shared laboratory services, could slow employment growth in this field. Future employment levels in this field will depend to a great extent on government policy and the financial resources available to the health care system.

Earnings

The salaries of medical laboratory technologists vary according to education, years of experience, the region where they are employed, and size and type of workplace. Salaries for medical laboratory assistants are approximately 15% below those for technologists.

General laboratory technologists employed by the federal public service (Pay Research Bureau, September 1989) earn between $27,820 and $37,422, while registered technologists earn between $31,177 and $40,968, supervisors earn between $35,412 and $48,638, and chiefs earn between $37,616 and $52,714.

1985 Annual Earnings	$	
Lowest 10% of Workers	16,735	or less
Average Worker	26,626	
Highest 10% of Workers	35,777	or more

Source: 1986 Census

For further information, contact:

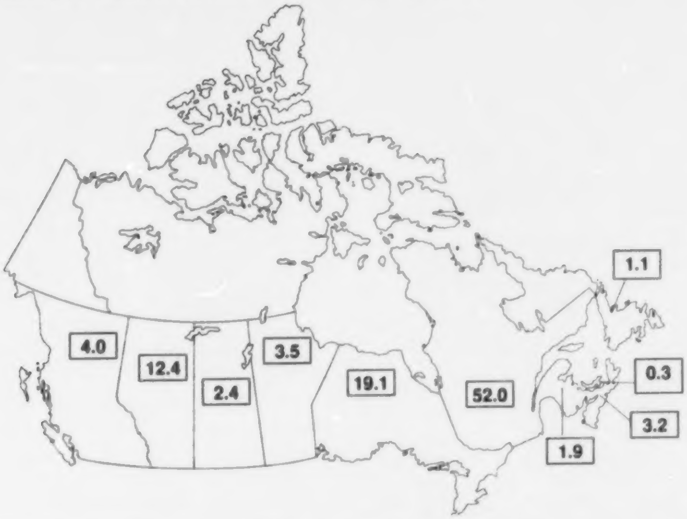
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Canadian Society of Laboratory Technologists
P.O. Box 2830, Station A
Hamilton, Ontario L8N 3N8
(416) 528-8642

Denturists 3157

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	2,227	6.3	3.8	851
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	87	12	11	75	14	93	7
	1986	86	13	5	75	20	89	11
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (86) - Miscellaneous (86)	**Services** (13) - Health and Welfare - Non-Hospital (12)

Denturists

3157

Job Environment

Denturists are an independent professional group organized under licensing authority. Their duties include measuring patients' jaws to determine denture size and shape; making impressions of patients' teeth, gums and jaws; designing dentures to specifications; and constructing, fitting, modifying and repairing dentures. Denturists work largely without the supervision of a dentist and are a self-governing occupation providing an alternative to the services of a dentist in a particular aspect of dental health care.

Denturists generally work as employees or owner-operators of a business. Where they own or manage the establishment in which they work, denturists must have, in addition to the skills of their profession, the management and leadership abilities required to run a successful business.

Educational Background and Skills

Prospective denturists must complete a two- or three-year community college program in denture technology that covers such subjects as anatomy, oral pathology, kinesiology, histology, microbiology, complete denture prosthodontics, radiographic interpretation and small business practices. Graduates of this program then work as an intern in a registered denture clinic for at least two years. During this period, they must write and pass examinations to obtain registration and licensing (except in Prince Edward Island).

Nature of Supply

In 1986, 86% of Canada's denturists were men, a proportion marginally below that of 1981. Denturists constitute an older labour force, with an average age of 41 years and only 65% of its members aged 44 or less. The incidence of part-time work in this occupation is low (11%), most likely reflecting the high number of self-employed individuals.

Market Conditions and Job Prospects

Job growth for denturists has been very high and will maintain a rate well above the all-occupation average over the projection period. Up to 1995, as many as 900 new denturists may be required in the economy, about 30% will fill existing employment positions and the rest will move into newly created jobs. This represents a fairly low level of recruitment relative to that projected for the labour force as a whole. New demand growth is countered by a low number of retirements. Current employment prospects for denturists are good. Unemployment in this workforce is low, primarily reflecting the fact that most denturists are self-employed.

It should be noted that expectations of job growth are based on the assumption that current patterns of dental care will continue. An increasing emphasis on preventive dental maintenance and the ability of people to keep their teeth longer could have a negative impact on the demand for denturists' services.

Earnings

Salaries in this field vary considerably, depending on the specific occupation, level of experience, place of employment, province and whether or not a denturist is self-employed.

1985 Annual Earnings	$	
Lowest 10% of Workers	8,084	or less
Average Worker	25,547	
Highest 10% of Workers	49,838	or more

Source: 1986 Census

For further information, contact:

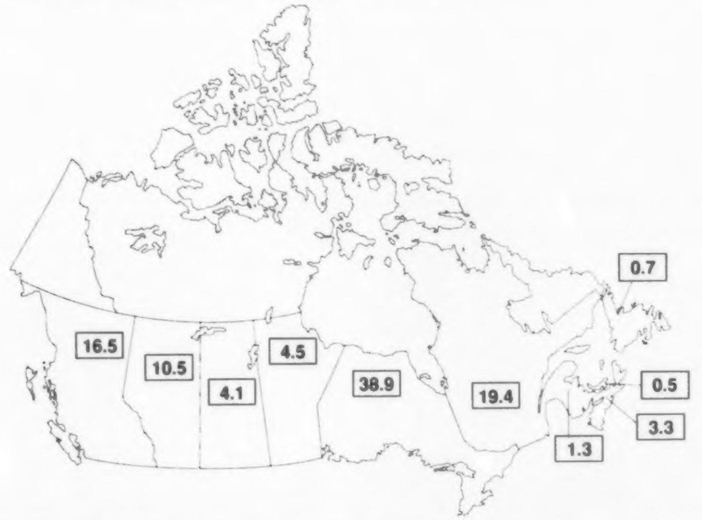
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

The Denturist Association of Canada
P.O. Box 128, 684 Main Street
Sussex, New Brunswick E0E 1P0
(506) 433-6212

Dental Hygienists, Dental Assistants 3158

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	24,649	3.7	0.9	15,129
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	2	98	45	52	3	81	19
	1986	2	98	32	66	2	75	25
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (96)
- Health and Welfare - Non-Hospital (93)
- Hospital (1)

Public Administration (3)
- Provincial (2)

Dental Hygienists, Dental Assistants

3158

Job Environment

Dental hygienists and dental assistants generally find work with in a private dentist's office, although employment opportunities also exist in schools, hospitals and public health clinics.

The dental hygienist's major responsibility is the promotion of oral health, which includes conducting dental examinations, consulting with the dentist on patient care, cleaning and polishing teeth, taking X-rays and impressions, instructing patients in proper dental care techniques and providing related services.

Dental assistants prepare the patient for treatment, sterilize instruments, assist the dentist at chairside, process X-rays, prepare solutions and fillings for treatment, and assume day-to-day clerical responsibilities.

Educational Background and Skills

Some dental assistants receive their vocational training on the job, but the majority undertake formal preparation. Some high schools in Ontario offer a dental assistant program which combines on-the-job training with academic study during Grades 11 and 12, but most programs are available from community colleges and vocational institutes and require one year of study beyond secondary school.

Dental hygienists usually require graduation from a specialized program at a community college or university, which generally takes two years of study. A bachelor's degree in dental hygiene is available to individuals wishing to pursue a career in dental hygiene education, consulting or research. This qualification is being increasingly sought in staffing, reflecting the growing importance of higher education in this field.

These occupations are regulated in almost all provinces, and candidates may need to pass an exam to obtain registration and licensing. Academic and professional qualifications are generally not transferable among provinces. Further information can be obtained from the appropriate professional association one's province. Continuing education may be a condition of licence renewal and can assist advancement in the practice.

Nature of Supply

In 1986, 98% of dental assistants and dental hygienists were female and almost 80% were aged 34 years or less. The average age was 29. One-quarter of dental hygienists and dental assistants worked part-time, a significant increase over the proportion of five years earlier, and marginally above the average for all occupations.

Market Conditions and Job Prospects

Following a decade of above-average job growth, the rate of employment increase for dental assistants and dental hygienists should be below the all-occupation average through to 1995. In the next six years, more than 15,000 job openings are expected, over 90% of which will be openings created by personnel retiring from the work force. These numbers do not reveal important structural changes taking place in the practice. The aging Canadian population and their ability to keep their teeth longer, combined with a changing pattern of dental disease, are creating a greater need for the services provided by dental hygienists. Consequently, the rate of job growth in this latter group is expected to be high, while the same factors may diminish demand for dental assistants.

Employment prospects for dental assistants and dental hygienists are very good. Unemployment is low relative to that for the labour force in general, although this primarily reflects current shortages of qualified dental hygienists.

Earnings

Salaries in this field vary considerably, depending on the specific occupation, level of experience and education, employment setting, union status and province. In 1988, uncertified dental assistants in Saskatchewan earned between $13,650 and $24,000 per annum and salaries for certified dental assistants were approximately 2% higher. Dental hygienist incomes ranged from $27,040 to $36,000 per annum (Saskatchewan Human Resources, Labour and Employment, 1988). Hourly wages for dental assistants in Prince Edward Island ranged from $7.50 to $12.31 in mid-1989. Dental hygienists earned between $12.05 and $18.00 per hour (Employment and Immigration Canada, P.E.I. Regional Office, June 1989).

1985 Annual Earnings	$	
Lowest 10% of Workers	11,282	or less
Average Worker	18,735	
Highest 10% of Workers	28,970	or more

Source: 1986 Census

For further information, contact:

Canadian Dental Association
1815 Alta Vista Drive
Ottawa, Ontario K1G 3Y6
(613) 523-1770

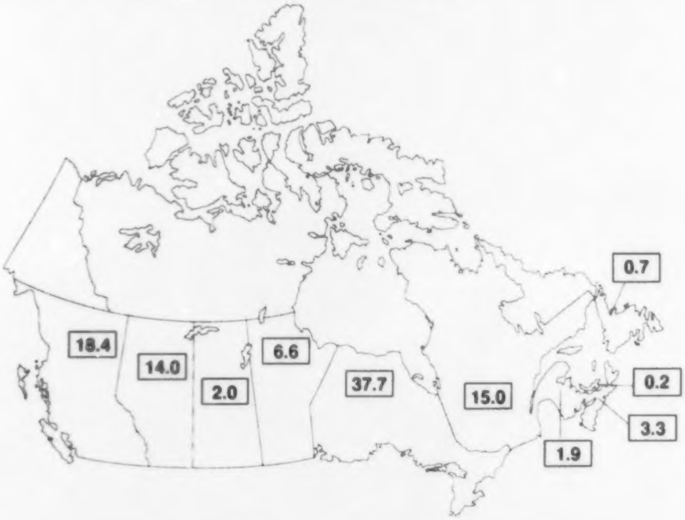
Canadian Dental Hygienists' Association
201-1018 Merivale Road
Ottawa, Ontario K1Z 6A5
(613) 728-8730

Canadian Dental Assistants' Association
Suite 204, 542 7th Street South
Lethbridge, Alberta T1J 2H1
(403) 328-1948

Dental Laboratory Technologists 3161

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,354	-0.2	0.0	505
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	69	31	20	71	9	92	8
	1986	64	36	17	75	8	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (75)
- Miscellaneous (75)

Services (23)
- Health and Welfare - Non-Hospital (20)
- Education (2)

Dental Laboratory Technologists

3161

Job Environment

Following the prescription of a dentist, dental laboratory technologists alter, repair and make artificial dental devices such as removable dentures, bridgework, inlays, crowns and orthodontic appliances. They also sometimes instruct and supervise junior colleagues and provide other management services for the dental laboratory in which they work.

Dental laboratory technologists generally work either as employees or as owner-operators in commercial dental laboratories. Where they own or manage the establishment in which they work, they must have, in addition to the skills of their profession, the management and leadership abilities required to run a successful business.

Educational Background and Skills

Dental laboratory technologists can receive their training through a four- or five-year apprenticeship in a dental laboratory following high school graduation. Alternatively, they may take a two- or three-year dental technology program from a community college. Programs generally incorporate both formal, classroom-based learning and periods of supervised clinical practice. This is the recommended form of vocational preparation. In every province, dental laboratory technologists must be licensed to gain employment in their field.

Nature of Supply

In 1986, 64% of dental laboratory technologists were men, a figure marginally below that of 1981. The average age of dental laboratory technologists was 35 years, with approximately 80% aged 44 years or less. The incidence of part-time work is low (8%), most likely reflecting the high number of self-employed individuals.

Market Conditions and Job Prospects

Between 1981 and 1989, the number of employment opportunities available to dental laboratory technologists remained virtually unchanged. This situation is expected to continue through to 1995, meaning that the only jobs which will become available in this field will be those vacated by retiring practitioners. Projected to be approximately 500 over the six-year period, the number is itself small, primarily a reflection of the very young age distribution of this occupation's workforce.

It should be noted that the above expectations of job growth are based on the assumption that current patterns and structures of dental care will continue. An increasing emphasis on preventive dental maintenance and the ability of more people to keep their teeth longer could have a negative impact on the demand for those services provided by dental laboratory technologists and denturists.

Earnings

Salaries in this field vary considerably, depending on the specific occupation, level of experience, place of employment and self-employment status.

1985 Annual Earnings	$	
Lowest 10% of Workers	11,434	or less
Average Worker	22,952	
Highest 10% of Workers	36,187	or more

Source: 1986 Census

For further information, contact:

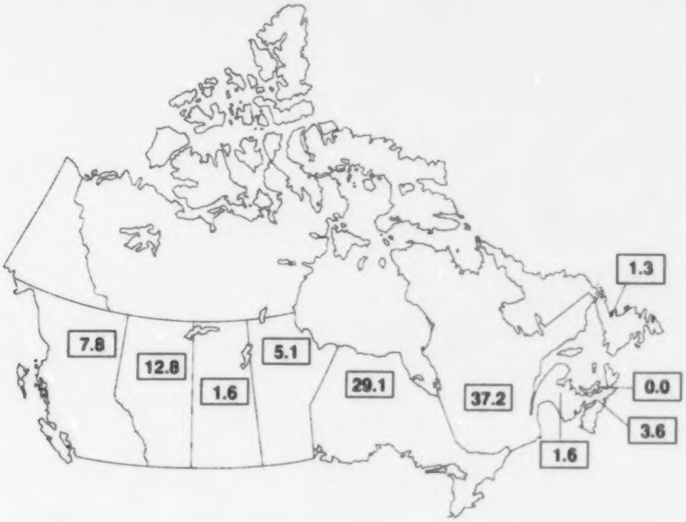
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

The Denturist Association of Canada
P.O. Box 128, 684 Main Street
Sussex, New Brunswick E0E 1P0
(506) 433-6212

Respiratory Therapists 3162

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,822	11.5	6.5	4,294
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	32	68	33	64	3	81	19
	1986	33	67	19	79	2	76	24
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (98)
- Hospital (95)
- Health and Welfare - Non-Hospital (2)

Respiratory Therapists

3162

Job Environment

Respiratory therapists assist physicians in the diagnosis and treatment of respiratory and cardiopulmonary disorders by performing diagnostic tests and administering and evaluating respiratory therapy treatments. Their primary responsibilities include performing diagnostic tests (such as arterial blood gas analysis and tests of cardiopulmonary functions); operating respiratory equipment to administer treatments involving oxygen, oxygen-air mixtures, humidified air or medications as directed by physicians; performing tests to evaluate the effectiveness of treatments; and cleaning, sterilizing and performing minor repairs on respiratory equipment. Respiratory therapists also train and supervise student therapists and others in the profession. With experience, people in this field can specialize in areas such as critical care, pediatrics and diagnostic procedures, and further training may lead to employment as a cardiovascular perfusionist. Most respiratory therapists work in hospitals, although a small and increasing number are finding work in medical clinics and respiratory home care companies.

Educational Background and Skills

Most respiratory therapy education programs require applicants to have completed four years of secondary school with an emphasis on the sciences. These programs are available in some community colleges and hospitals, and generally require two or three years for completion. They include classroom-based learning and supervised clinical practice.

In British Columbia, Alberta and Manitoba respiratory therapists must be licensed by the designated provincial regulatory authority to obtain employment.

Nature of Supply

The post-secondary education system is the primary avenue through which individuals enter this field, although immigration also accounts for a relatively large proportion of entrants to this occupation. In 1986, 67% of respiratory therapists in Canada were women. This is a very young work force, with almost 80% of its members aged 34 years or less. The average age is 31 years.

Market Conditions and Job Prospects

Employment growth for respiratory therapists was very high throughout the 1980s, and although growth is expected to moderate in the future, it will continue to surpass the all-occupation average until at least 1995. During the projection period an estimated 4,300 employment positions will become available in the field, approximately 40% of which will be new openings; the remainder will be employment positions vacated by retiring respiratory therapists. This represents a very high recruitment rate relative to that for the labour force as a whole.

Employment prospects are excellent for respiratory therapists. The rate of unemployment is currently low, below that of the early 1980s. As with the other technology-based occupations in the health care sector, this field will continue to be influenced by technological innovations, and people considering a career as respiratory therapists must be prepared to revise and upgrade their professional skills accordingly.

Earnings

In 1988, respiratory therapists employed in Saskatchewan earned between $26,935 and $31,797 per year. On average, annual earnings were $29,302 (Saskatchewan Human Resources, Labour and Employment, 1988).

1985 Annual Earnings	$	
Lowest 10% of Workers	20,128	or less
Average Worker	27,843	
Highest 10% of Workers	35,321	or more

Source: 1986 Census

For further information, contact:

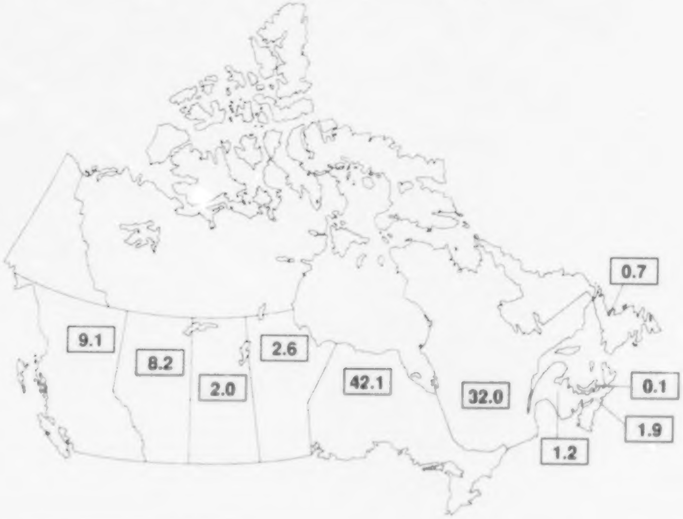
Dept. of Health and Welfare Canada
Health Services & Promotion Branch
6th floor, Jeanne Mance Bldg.
Ottawa, Ontario K1A 1B4

Product and Interior Designers

3313

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	25,030	2.4	1.7	15,027
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	43	57	22	68	10	79	21
	1986	38	62	18	72	10	75	25
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (41)
- Retail (37)
- Wholesale (4)

Services (30)
- Business (24)
- Recreation (3)
- Miscellaneous (1)

Manufacturing (21)
- Clothing & Knitting (8)
- Miscellaneous (3)
- Furniture & Fixtures (2)

Product and Interior Designers

3313

Job Environment

This occupational group includes interior designers and decorators, textile designers and industrial product designers. Their work involves designing commercial products, clothes, show windows and exhibits, or sets for stage, motion picture and television productions. Designers consult with clients and other specialists in the field and work long hours under urgent deadlines. More experienced designers travel and attend design conferences. Work may be done in a workroom, office, home or store.

Educational Background and Skills

The amount of training necessary in these occupations depends on the specialization, but is usually between two and four years at the community college or university level. Industrial product designers and professional interior designers usually take programs in engineering or in architecture or interior design, respectively. On-the-job training may also be necessary and is provided by the employer for a period of one to five years. Good interpersonal skills, initiative, the ability to perceive three-dimensional space from two-dimensional drawings and a good sense of colour are also desirable.

Nature of Supply

Graduates from community colleges and universities are the most important source of supply to this occupation. Suitable training at the community college level includes programs in interior design and other applied arts. The main channels of entry from university are industrial design and other applied arts fields, such as graphic arts, drawing, fashion design and interior design. Opportunities for advancement into management, consulting or self-employment are available for designers with experience and demonstrated talent.

Women represented 62% of this occupational group in 1986, compared to 57% in 1981. The age composition of the group remained stable between 1981 and 1986 and is representative of the age structure of the labour force as a whole. Most designers are employed in Ontario (42%) and Quebec (32%).

Market Conditions and Job Prospects

The employment outlook for these occupations calls for average growth over the forecast period, based on growth prospects for the retail trade, business services, and clothing and knitting sectors. This contrasts with the 1980s, when employment grew slightly faster than average.

Labour market conditions for this group appear quite good. Up to 1995, over 15,000 designers will be needed to fill new job openings and to replace personnel who leave due to death and retirement or who return to the household or the educational system.

Employment in this field is not seasonal and is only mildly affected by the business climate. Over the projection period, changing technology will not have a significant impact on employment levels. The incidence of part-time work for designers is higher than average due to the heavy concentration of employment in the retail trade sector.

Earnings

Designers' incomes vary considerably according to experience, talent, area of specialization and whether or not the designers are self-employed. Fashion designers with national or international reputations earn the most. They usually work free-lance and negotiate their fees with manufacturers.

The Association of Canadian Industrial Designers noted that in 1986 the minimum starting salary for industrial designers was $18,000. The average salary was $28,000 after five years and $40,000 after 10 years. The self-employed average was $50,000, but this was usually after a successful career working for others.

1985 Annual Earnings	$	
Lowest 10% of Workers	9,703	or less
Average Worker	22,927	
Highest 10% of Workers	38,968	or more

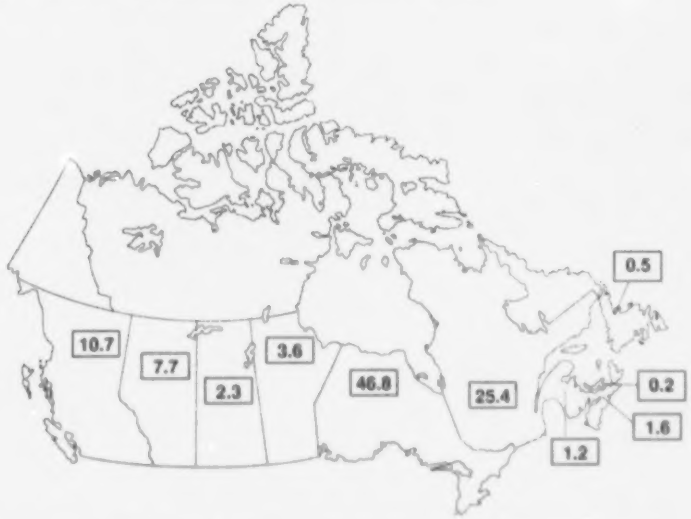
Source: 1986 Census

Advertising and Illustrating Artists

3314

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	27,283	5.7	3.9	21,487
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	64	36	23	70	7	86	14
	1986	60	39	18	75	7	83	17
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (52)
- Business (40)
- Miscellaneous (5)
- Education (3)

Manufacturing (32)
- Printing & Publishing (19)
- Miscellaneous (8)

Trade (5)
- Retail (4)
- Wholesale (2)

Advertising and Illustrating Artists

3314

Job Environment

Occupations in this group include advertising, commercial and graphic artists, and medical and scientific illustrators. These artists create designs, illustrations, cartoons and caricatures for advertising, entertainment and information. Their work environment is usually a studio.

Educational Background and Skills

There is no specific preparation for this occupation; background, aptitude and demonstrated ability are as important as formal education. Suitable characteristics include a broad knowledge of the various art forms, including photography, and a natural talent in art. Prospective medical illustrators should have a basic knowledge of science, since most of their work is done in consultation with medical professionals. These attributes, combined with a community college or university qualification in related disciplines, provide applicants with all the necessary requirements for entering the occupation. Community college and private art colleges offer programs lasting between two and four years. Most employers ask applicants to present samples of their work when seeking employment.

Nature of Supply

Graduates from the post-secondary education system are the primary source of supply to these occupations. The major fields of study leading to these positions are commercial or advertising arts, promotional arts and graphic and audio-visual arts. An undergraduate degree in fine arts can also be useful. Advancement opportunities in this category depend on the area of specialization.

Female representation in this group rose from 36% in 1981 to 39% in 1986. Generally, individuals enter the occupation between the ages of 20 and 29 and begin to leave by the end of their 50s; the concentration of individuals between 25 and 54 is higher than average. Most advertising and illustrating artists work in Ontario (46%) and Quebec (25%).

Market Conditions and Job Prospects

Labour market conditions for these occupations in the 1980s were good, as growth was considerably better than for all occupations. The employment outlook for the 1989-to-1995 period calls for continued above-average growth, based on employment patterns in the business services and printing and publishing sectors. Approximately 21,500 positions will become available, about two-thirds of which will occur to replace personnel lost through death, retirement and reurns to the household and educational system.

This group is only slightly vulnerable to changing business conditions, as reflected in recent employment patterns. Employment is not seasonal, although there is some slowdown during the winter months, nor is it directly affected by changes in technology. Advancements in computer graphics, however, have greatly benefited graphic and commercial artists. Part-time work in these occupations is slightly lower than the average for all occupations.

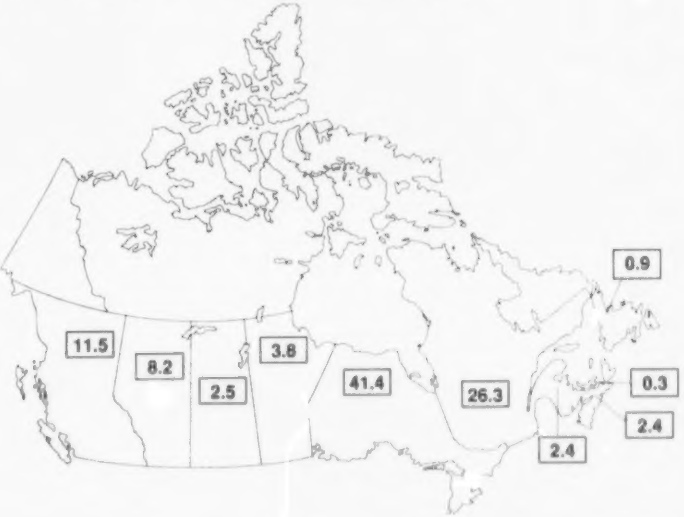
1985 Annual Earnings	$	
Lowest 10% of Workers	11,934	or less
Average Worker	24,372	
Highest 10% of Workers	38,396	or more

Source: 1986 Census

Photographers and Camera Operators 3315

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	11,692	4.4	2.2	7,552
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	82	18	20	71	9	82	18
	1986	80	20	17	74	9	78	22
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (70)
- Miscellaneous (57)
- Recreation (5)
- Education (3)

Transport & Communications & Utilities (13)
- Radio & TV Broadcasting (12)

Manufacturing (10)
- Printing & Publishing (8)

Photographers and Camera Operators

3315

Job Environment

People in this group include commercial, industrial and aerial photographers as well as television and news camera operators. They may photograph people, events or materials, or film motion-pictures, television scenes or news events. Specialization in areas such as historical, medical and aerial photography is becoming commonplace. The work is either on location or in studios and laboratories and can involve extensive travel. Experience in these occupations may lead to supervisory and management positions.

Educational Background and Skills

There are two main paths of entry into this field. After receiving a high school diploma, individuals can either start working with a firm that will provide two to six years of on-the-job training, or obtain a two- or three-year college diploma in a related career program. Other desirable qualifications include previous amateur experience in photography, the ability to work well with others and some artistic talent. People in these occupations should also have a lively interest in others, as they are frequently meeting the public.

Nature of Supply

Most photographers and camera operators are community college graduates with diplomas in photography, radio or TV broadcasting, cinematography, film production, animation or other mass communications studies. University graduates entering the occupation generally have degrees or certificates in mass communications studies or other applied arts. Temporary foreign workers have significantly augmented the labour supply in the past.

The representation of women in this occupational group increased marginally from 18% to 20% between 1981 and 1986. The age structure of the occupation shows a higher-than-average proportion of individuals in the 25-to-54 age category. Most people enter the occupation while in their 20s and begin to leave during their 40s.

Market Conditions and Job Prospects

Labour market conditions for this occupational group have been about average, as indicated by the number of job vacancies and by the average rate of unemployment.

The employment outlook for these occupations calls for above-average growth over the forecast period, based on growth prospects for photographic services, printing and publishing, and television broadcasting. This anticipated growth is below that of the 1980s, however, but will be better than average over the 1989-to-1995 period. About 7,500 job openings will be created up to 1995, mainly by people leaving the field for various reasons.

This group is only mildly susceptible to changing business conditions. There is no distinct seasonal pattern of employment, and the incidence of part-time work is average. The increasing use of visual aids in business and image-recording in medicine, law and science has been boosting the demand for technically competent personnel in this area.

Earnings

Many factors determine the incomes of commercial photographers, such as reputation, experience, location and employment status (free-lance or employed by an organization). Advertising budgets are larger in Toronto, the centre of industrial and commercial photography. Corporations, design firms, large magazines and newspapers pay moderately well, while local newspapers and direct retail clients pay the lowest rates.

The Canadian Association of Motion Picture and Electronic Recording Artists (CAMERA) reported 1986 minimum hourly rates of $5.78 for trainees to $50.00 for directors of photography. The National Association of Broadcast Employees and Technicians (NABET) reported 1986 minimum free-lance hourly rates of $24.00 for camera operators (features) and $40.00 for directors of photography (commercials).

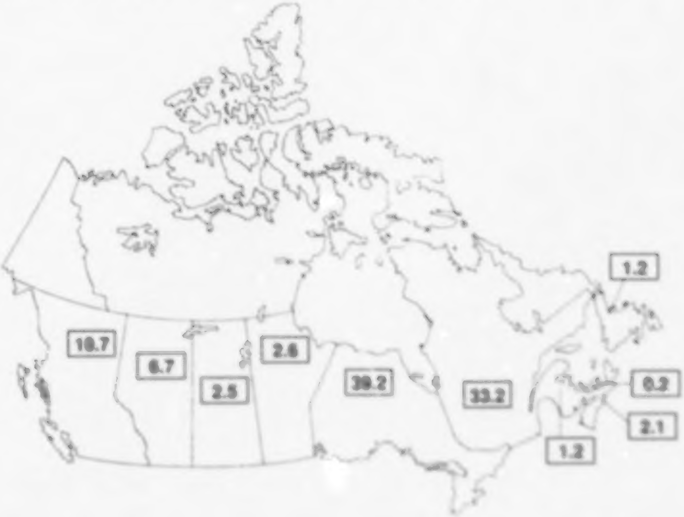
1985 Annual Earnings	$	
Lowest 10% of Workers	10,258	or less
Average Worker	24,727	
Highest 10% of Workers	40,388	or more

Source: 1986 Census

Producers and Directors, Performing and Audio-Visual Arts 3330

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	13,034	4.0	4.0	10,453
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	72	28	12	82	6	91	9
	1986	68	32	9	85	6	89	11
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (49)
- Recreation (39)
- Education (4)
- Miscellaneous (3)

Transport & Communications & Utilities (46)
- Radio & TV Broadcasting (45)

Public Administration (3)
- Provincial (1)
- Federal (1)

Producers and Directors, Performing and Audio-Visual Arts 3330

Job Environment

This occupational group includes drama, musical and program directors as well as theatrical, motion picture and video producers. These people produce, direct and supervise radio and television programs, motion picture productions and theatrical performances. In most instances, they work long hours under stressful conditions, but the prestigious results can be highly rewarding.

Educational Background and Skills

There are no specific educational requirements, although a high school diploma and post-secondary education in visual arts, film making or a related discipline may prove helpful. A background in theatre, cinematography, television or music production, as well as leadership, and organizational and management skills are as important as academic training in this field. Most of the jobs in this occupational group require many years of relevant experience, some of which may be at the amateur level. Other desirable qualifications are a good knowledge of accounting, marketing, management and directing, and the ability to work well with others.

Nature of Supply

These are not usually entry-level occupations, since they are almost entirely restricted to persons with relevant backgrounds and work experience. College and university graduates with a diploma or a degree in fine and applied arts fill some positions, and temporary foreign workers have been a significant source of new supply in the past.

The representation of women in this occupation increased from 28% to 32% between 1981 and 1986. Over 80% of people in this group are in the 25-to-54 age category, and the highest concentrations are in Quebec (33%) and Ontario (39%). People generally enter this field between the ages of 25 and 35 and begin to leave while in their 50s, for an average career length of 25 years.

Market Conditions and Job Prospects

Employment growth in this group will be considerably above average, judging from employment patterns in the radio, television and broadcasting, and recreation sectors. This will be an improvement over the early 1980s, when employment grew only marginally faster than average. Future job openings will occur mainly to replace personnel lost through death, retirement and returns to the household or the educational system. About 10,500 openings, including new jobs, will be available up to 1995.

Employment in these occupations is mildly susceptible to changes in the economic climate. Technological change has not significantly affected these occupations and there is very little seasonal variation.

Earnings

Pay ranges in this occupational group vary according to experience and the position held. In 1986, apprentice producers/directors earned salaries from $17,000 to $27,000 per year. At the end of two years' employment, they may earn up to $41,000, and after eight years their pay levels may approximate an annual salary of $46,000. Salaries for directors of feature films vary with the film's budget; for pictures of up to $500,000 that take nine weeks to complete, a director would receive about $2,400 per week. Pay scales for freelance directors of motion pictures for television range from $4,500 for a half-hour production (up to five days' shooting time) to $27,000 for two hours (up to 30 days' shooting time).

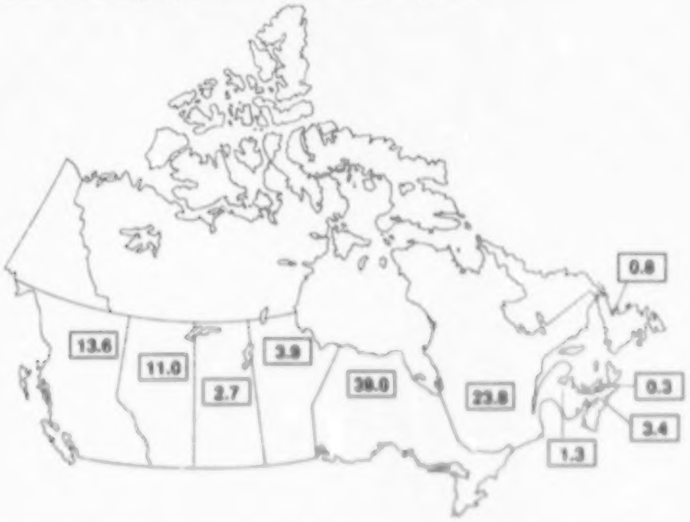
1985 Annual Earnings	$	
Lowest 10% of Workers	15,205	or less
Average Worker	33,437	
Highest 10% of Workers	52,582	or more

Source: 1986 Census

Conductors, Composers and Arrangers 3331
Musicians and Singers 3332
Occupations Related to Music and Musical Entertainment 3333

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	13,946	-0.7	0.3	6,897
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	75	25	27	65	8	60	40
	1986	74	26	21	70	9	56	44
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (95)
- Recreation - Live Theater (71)
- Accommodation & Food (9)

Public Administration (3)
- Federal (3)

Transport & Communications & Utilities (1)

Conductors, Composers and Arrangers 3331
Musicians and Singers 3332
Occupations Related to Music and Musical Entertainment 3333

Job Environment

This occupational group includes band and orchestra conductors, music composers, instrumentalists, organists and vocalists. These people compose, arrange, direct and perform instrumental or vocal music and they usually work indoors, in rehearsal studios and concert halls. Employment opportunities are with symphony orchestras, armed forces bands, rock groups, choirs, commercial studios, radio, television, opera, musical theatres and other spheres of popular entertainment.

Educational Background and Skills

The music profession is very competitive and demands a high degree of competency and talent - qualifications which are as important as education. Most musicians start their training in childhood. For a career as a music teacher, composer, symphony musician or conductor, a university degree is highly desirable. Community colleges and private institutions offer training programs lasting up to three years. For some positions, a minimum number of years of experience may be required, but all musicians require a high degree of discipline and must be in good physical condition.

Nature of Supply

An important source of supply to this field are people re-entering the labour market from the household sector and people from other occupations. Post-secondary graduates in music, immigrants and temporary foreign workers are equally important sources. Preliminary data on movement between occupations suggest that the number of people entering this occupation exceeds the number leaving it.

Between 1981 and 1986, female representation in these occupations increased slightly, while the number of people under 25 declined and of those between 25 and 54 increased. People usually enter these occupations in their 20s and begin to leave by the end of their 40s, for a career length of approximately 20 years.

Market Conditions and Job Prospects

Labour market conditions for conductors, composers and arrangers have been comparatively favourable in the past few years but this is not expected to continue. Below-average growth in the amusement and recreation (includes live theater), accommodation and food sectors will weaken employment opportunities for all occupations in this category. The increased use of recorded music in entertainment establishments further slowed growth in employment for musicians and singers during the early 1980s. Total job openings up to 1995 are expected to be under 7,000, with most arising from retirements, deaths and returns to the household or education sectors.

These occupations are only moderately susceptible to changing economic conditions. Employment is seasonal, peaking in the fall and winter. In the off-season, performers find employment at summer festivals and resorts. Part-time work is very common. Technological change, (e.g., synthesized music) has moderately affected this occupational group.

Earnings

Pay scales in this classification vary according to the type of work involved and the talent of the performer. In 1986, the American Federation of Musicians set the basic fees for musicians performing in commercials at $96.00 for a session of up to three commercials. The basic rate for musicians working in television and film was $377 for the leader and $189 for each sideman. The basic union recording fee was $162 per three-hour session for recordings distributed only in Canada, and $196 for internationally distributed recordings. Members of symphony orchestras earned $208 per three-hour recording session, and $277 for a four-hour session. No fixed pay scale exists for singers. A concert singer's income depends on the singer's level of achievement and the availability of singing engagements. According to ACTRA (Alliance of Canadian Cinema, Television and Radio Artists) a principal singer on a 60-minute CBC TV variety special in 1990 earns a minimum fee of $743, while singers in groups of three or four each earn a minimum of $289. Performers with unique talents or who have achieved star status can, of course, command much higher fees for their performances.

1985 Annual Earnings	$	
Lowest 10% of Workers	5,004	or less
Average Worker	20,847	
Highest 10% of Workers	41,280	or more

Source: 1986 Census

For further information, contact:

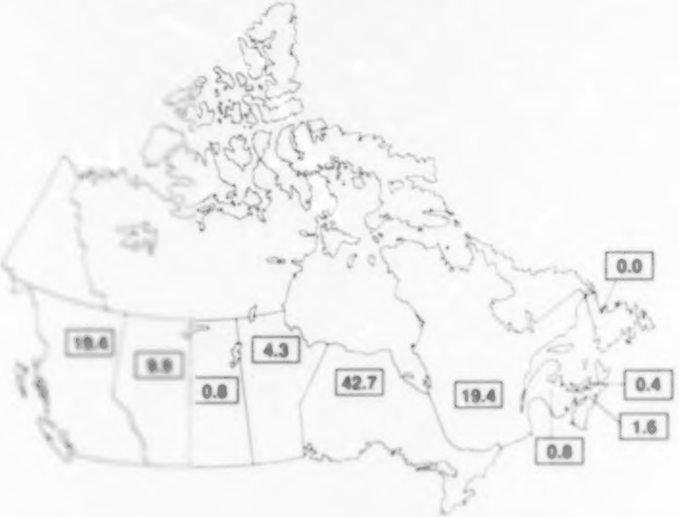
The Association of Canadian Orchestras
Suite 311, 56 The Esplanade
Toronto, Ontario M5E 1A7
(416) 366-8834

Alliance of Canadian Cinema,
Television and Radio Artists (ACTRA)
2239 Yonge Street
Toronto, Ontario M4S 2B5
(416) 489-1311

Choreographers and Dancers 3334

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,528	6.0	2.5	1,028
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	20	80	47	53	0	72	28
	1986	26	74	49	50	1	73	27
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (98)
- Recreation - Live Theatre (74)
- Accommodation & Food (13)
- Education (8)

Choreographers and Dancers

3334

Job Environment

People in this group include choreographers, chorus dancers, classical ballet dancers and tap dancers. Choreographers plan and develop dance routines and instruct dancers on their performance. Dancers learn and rehearse dance routines and give performances, usually before a live audience. They usually work indoors, either on stage or television and motion picture sets, or in nightclubs.

Educational Background and Skills

Various paths of preparation lead to this occupation, since there is no standard minimum requirement. Some people are initiated to the dance arts in childhood and pursue formal training at the post-secondary level, while others may start their training at a community college and continue in dance and perhaps other performing arts at university. College programs last two to three years, while university programs can take up to four years. A dancer requires good physical conditioning and an ability to respond sensitively to music.

Nature of Supply

Community college graduates in fine arts and university graduates in performing arts are important sources of supply to this occupation. In the past, temporary foreign workers have been a substantial source of supply.

Women represented 80% of all dancers in 1981 and 74% in 1986. Almost half of all dancers are under 25. The majority work in Ontario (43%), Quebec (19%) and British Columbia (19%).

Market Conditions and Job Prospects

The employment outlook for dancers and choreographers calls for a continuation of the above-average growth of the late 1980s, based on employment patterns in the recreation (live theater) and accommodation sectors. Total job openings are expected to approximate 1,000 up to 1995.

Labour market conditions in this field have been average compared with other occupations. The number of temporary foreign workers has been decreasing in the past few years, thus creating more job opportunities for Canadians. Employment in this group is not very sensitive to changes in economic conditions, partially because many positions are supported by various levels of government. Employment is seasonal, however, and because of fierce competition and the nature of this occupation the incidence of part-time work is very high.

Earnings

According to the Alliance of Canadian Cinema, Television and Radio Artists, the minimum pay levels from 1990 to 1991 for dancers on a 60-minute CBC variety program are $355 per person for solo or duo dancers and $289 per person for a group of three to four dancers.

1985 Annual Earnings	$	
Lowest 10% of Workers	5,147	or less
Average Worker	20,241	
Highest 10% of Workers	42,553	or more

Source: 1986 Census

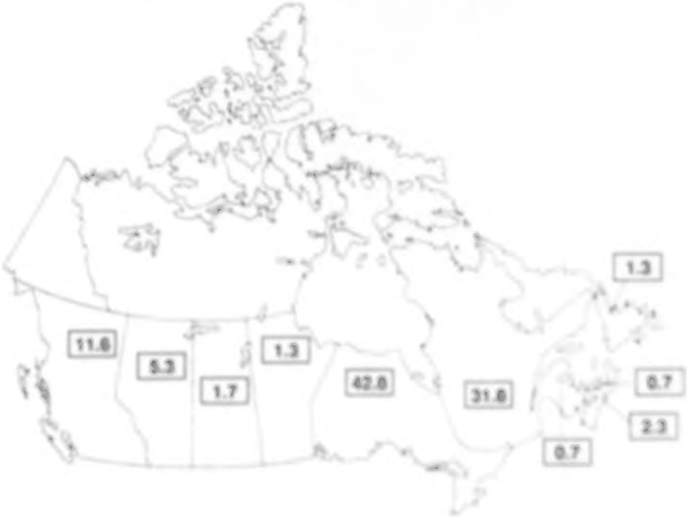
For further information, contact:

Alliance of Canadian Cinema,
Television and Radio Artists (ACTRA)
2239 Yonge Street
Toronto, Ontario M4S 2B5
(416) 489-1311

Actors/Actresses 3335

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,448	3.9	3.3	2,541
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	55	45	27	65	8	65	35
	1986	59	41	23	68	9	57	43
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (86)	Transport & Communications & Utilities (10)	Public Administration (3)
- Recreation - Live Theater (77) - Education (4) - Miscellaneous (3)	- Radio & TV Broadcasting (9)	- Provincial (1)

Actors/Actresses

3335

Job Environment

Actors, actresses, comedians, impersonators and radio and theatrical performers are concerned with entertaining and educating audiences. They work in several media including the theatre, radio, movies and television. Long hours of rehearsal and preparation before a performance are essential to their jobs.

Educational Background and Skills

Although there is no specific requirement for entry into this occupation, the majority of actors have received some professional training at university, community college, or a private training school such as the National Theatre School in Montreal, or have apprenticed with a professional theatre company. Many also have performed in amateur theatre groups. Individuals must be talented, highly motivated, persistent and willing to knock constantly on doors and attend auditions. They should be imaginative, self-disciplined and talented at observing people and life.

Nature of Supply

The main sources of supply for this occupation are people re-entering the labour force, people from other occupations and graduates from the post-secondary education system. The majority of university graduates in this occupation two years after graduation have qualifications in the performing arts. Temporary foreign workers are also a significant source of supply. Preliminary data suggest that the flow of people into this occupation from related ones will exceed movement out of the field.

The proportion of women in this occupation decreased from 45% in 1981 to 40% in 1986. People in this occupational group tend to be slightly younger than the average for the whole labour force (36). The majority of professional actors are in Quebec (32%) and Ontario (42%).

Market Conditions and Job Prospects

The employment outlook for this occupation calls for continuation of the above-average growth of the 1985-to-1989 period, based on prospects for the recreation (live theater) and radio and television broadcasting sectors. Through 1995, approximately 2,500 jobs will open up, many of which will be the result of vacancies created by death, retirement and persons returning to the household and the educational system.

Labour market conditions for this group have been very favourable in the past few years. A large number of positions in this field are partially financed by various levels of government, insulating employment from economic fluctuations. Although unemployment rates are lower than average, many actors work in other occupations to earn a living while they search for acting work. There is little seasonal variation, and changes in technology do not significantly affect these occupations. Part-time work is common for actors, owing to the limited number of full-time jobs and the competitiveness in this field.

Earnings

Rates of pay vary considerably according to the type of work and whether the actors are on- or off-camera, or principal or group performers. The 1990-to-1991 minimum fee per session for principal actors on-camera at the CBC is $361. An off-camera (voice-over) performer earns $201. In 1990, a principal actor in a film (10 or more lines of dialogue) receives a minimum of $360 a day, while an actor with under 10 lines of dialogue earns a minimum of $243 a day. The 1986-to-1987 minimum, weekly in-town fees for stage actors ranged from $284 to $454; stage actors on tour received minimum weekly fees ranging from $669 to $839.

1986 Annual Earnings	$	
Lowest 10% of Workers	5,410	or less
Average Worker	22,677	
Highest 10% of Workers	41,860	or more

Source: 1986 Census

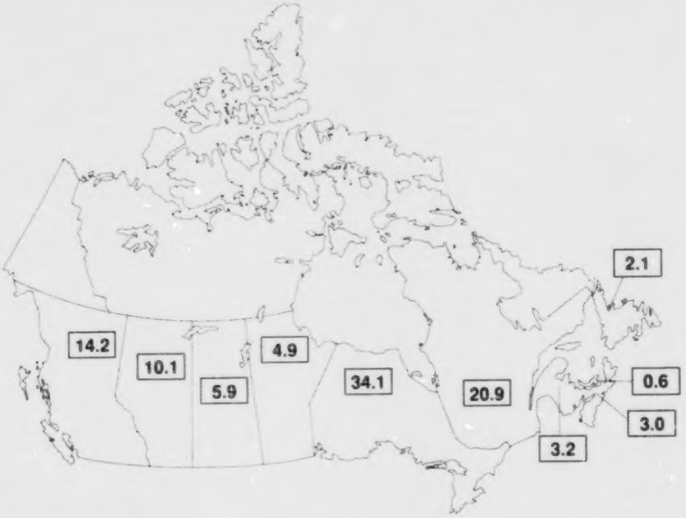
For further information, contact:

Alliance of Canadian Cinema,
Television and Radio Artists (ACTRA)
2239 Yonge Street
Toronto, Ontario M4S 2B5
(416) 489-1311

Radio and Television Announcers 3337

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,961	2.5	2.8	4,835
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	82	18	37	59	4	79	21
	1986	79	21	30	65	5	75	25
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (95)
- Radio & TV Broadcasting (95)

Services (5)
- Recreation (2)
- Miscellaneous (2)

Radio and Television Announcers

3337

Job Environment

This occupational group includes broadcasters, disc jockeys, sportscasters and newscasters. They prepare, broadcast and comment on news, sports and current events over radio and television, and select and announce musical recordings. Their work is usually done in a radio or television studio or at a sports or entertainment event.

Educational Background and Skills

The basic requirement for entry into this occupation is graduation from a community college program lasting two to three years or a bachelor's degree in a relevant field of study. The employer may provide three to 24 months of on-the-job training. Other important qualifications for entering this highly competitive area are a good command of language, a pleasant-sounding, clear voice and, for sports announcers, a thorough knowledge of sports.

Nature of Supply

People re-entering the labour force and graduates from the post-secondary education system are the major sources of supply to this occupation. The main channels of entry are through community college programs in radio and television broadcasting and other mass communications.

The proportion of women in this occupation is growing, having increased from 18% in 1981 to 21% in 1986. Almost one-third of all announcers are under 25, while just 5% are in the 55-plus category, suggesting that this is an entry-level position. People usually enter this occupation in their early 20s and leave during their 40s, for an average career span of approximately 20 years.

Market Conditions and Job Prospects

The employment outlook for radio and television announcers up to 1995 calls for a continuation of the above-average growth of the 1980s. Attrition will create about 3,600 job openings over the 1989-to-1995 period, and new positions will provide an additional 1,200 jobs.

The availability of contract work in this field has led to a slightly higher-than-average level of part-time work. Changes in business conditions have a mild effect on employment in this occupational group.

Earnings

According to Labour Canada, the average 1985 weekly income for Canadian TV announcers at stations with fewer than 100 employees was $520. The average salary jumped to $670 a week at stations with 100 to 499 employees and to $802 for announcers employed at stations with more than 500 employees. Sports announcers earned between $388 and $957 a week and averaged weekly earnings of $635 at TV stations with 100 to 499 employees. Radio announcers earned between $254 and $813, depending on the size of the station. The average salary was $603 per week. Sports announcers in radio earned an average weekly salary of $485.

1985 Annual Earnings	$	
Lowest 10% of Workers	12,114	or less
Average Worker	29,360	
Highest 10% of Workers	51,602	or more

Source: 1986 Census

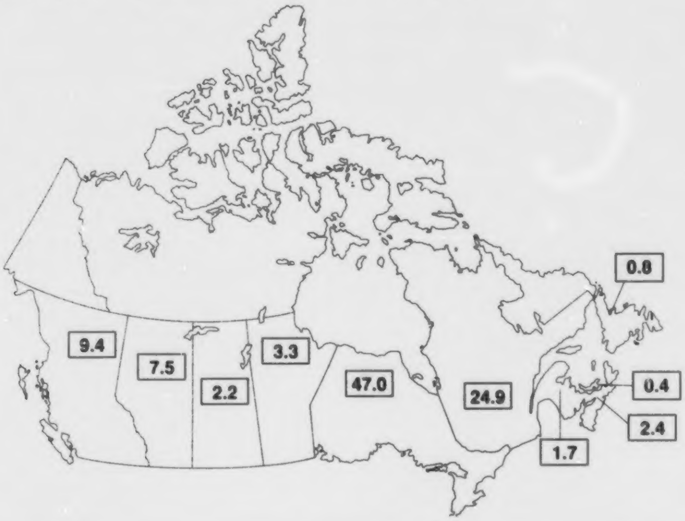
For further information, contact:

Alliance of Canadian Cinema,
Television and Radio Artists (ACTRA)
2239 Yonge Street
Toronto, Ontario M4S 2B5
(416) 489-1311

Writers and Editors 3351

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	36,259	3.5	2.8	13,025
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	59	41	14	74	12	82	18
	1986	55	45	12	77	11	80	20
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (38)
- Miscellaneous (24)
- Business (7)
- Education (4)

Manufacturing (35)
- Printing & Publishing (33)

Transport & Communications & Utilities (16)
- Radio & TV Broadcasting (14)

Writers and Editors

3351

Job Environment

This occupational group includes newspaper reporters, columnists, magazine editors, authors and other writers and editors who work on a permanent or free-lance basis. Writers research, prepare and write material for publications such as newspapers, books, magazines, technical manuals and trade journals. Editors for newspapers and magazines select and review material to be published and co-ordinate publication activities. Other editors clarify and reorganize written material. Although creative writing is included in this category, most positions in this field require writers to approach their work less as a creative exercise and more as a highly skilled craft. News writers and technical writers, for example, are more concerned with providing accurate, concise information than with creativity.

Occupations in this field often lead to middle and senior management positions, and to opportunities in writing-related occupations, such as public relations and teaching. The work environment varies according to the type of job, but generally writers work in an office with colleagues in similar occupations.

Educational Background and Skills

There is more than one way to find work as a writer or editor. Some people start right after high school and learn on the job, while others complete a university degree in journalism. College programs in such areas as broadcast journalism and communication arts are other major avenues to the occupation. The most popular degrees in this field are in journalism, English literature and mass communications. Generally, employers prefer university graduates who have covered several disciplines, and they also look for an ability to get along well with people, good research and organizational skills and some journalism experience while in school. It is usually necessary to have worked as a writer before progressing to work as an editor in a newspaper or magazine, whereas editors for publishing companies usually work their way up through the field.

Nature of Supply

The major sources of supply to this field are graduates from the post-secondary education system and people in the household sector re-entering the labour force.

Women's representation in this field (45%) is similar to the average for the whole labour force. Those between 25 and 54 dominate this group, and a lower-than-average proportion of writers and editors are under 25. Generally, entry into the field occurs when individuals are between 25 and 34 years old, and exits begin when they are in their 60s.

Market Conditions and Job Prospects

Based on employment patterns in the printing and publishing, journalism, free-lance writing and radio and television broadcasting sectors, the employment outlook for this occupational group calls for a continuation of the above-average growth of the 1980s. Approximately 13,000 writers and editors will be needed over the 1989-to-1995 period to fill new jobs and to replace personnel in existing jobs who will be leaving due to death, retirement or other reasons.

Employment in this group tends to be stable, since work is not seasonal and is not affected by the business cycle. The incidence of part-time work is about the same as the average for all occupations. Although new technology, such as word processors and EDP equipment, has enabled writers and editors to perform tasks faster and more efficiently, it has not significantly affected employment.

Earnings

Writers' earnings depend on whether the writers work on a salaried or free-lance basis, on the type of writing they do and on their employer. The Newspaper Guild reported that 1986 minimum weekly starting salaries for newspaper reporters with Canadian dailies ranged from a high of $543 to a low of $298. Wire service reporters and editors earned minimum weekly salaries of between $734 and $758 in 1986. The 1986 minimum rates for free-lance writers of theatrical films, television programs and other productions ranged from $2,227 for a film or program that was 15 minutes or less to $13,365 for a 60- to 90-minute show. These latter figures are based on an independent agreement between ACTRA and the National Film Board of Canada, the Association of Canadian Film and Television Producers (ACFTP) and the Canadian Film and Television Association (CFTA). However, there are many free-lance writers who are not members of these associations and they often work at other jobs to support their writing.

1985 Annual Earnings	$	
Lowest 10% of Workers	14,168	or less
Average Worker	30,935	
Highest 10% of Workers	49,901	or more

Source: 1986 Census

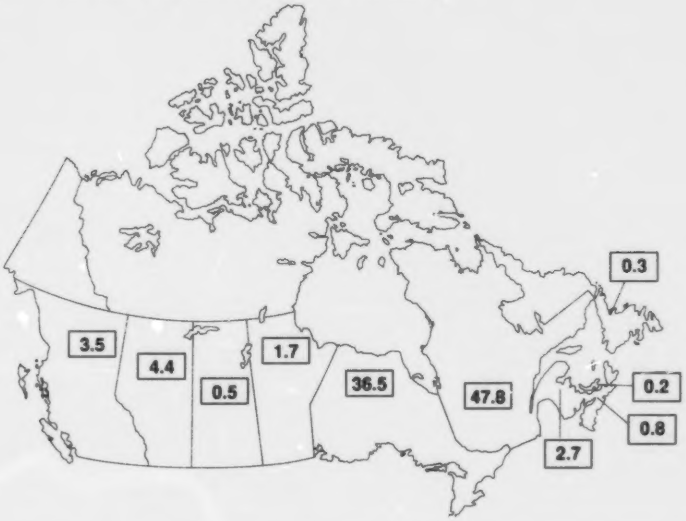
For further information, contact:

The Canadian Authors Association
Suite 104, 121 Avenue Road
Toronto, Ontario M5R 2G3

Translators and Interpreters 3355

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	7,588	3.6	3.7	5,880
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	39	61	13	75	12	77	23
	1986	35	65	10	79	11	75	25
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (42)
- Miscellaneous (27)
- Education (5)
- Business (4)

Public Administration (36)
- Federal (25)
- Provincial (9)
- Municipal (2)

Manufacturing (7)
- Printing & Publishing (2)
- Chemicals & Chemical Products (2)
- Electrical Products (1)

Translators and Interpreters

3355

Job Environment

Interpreters and translators handle a wide variety of material including literature, technical and scientific documents, speeches, laws and government publications. Interpreters work in soundproof booths equipped with earphones and provide interpretation either simultaneously or consecutively.

Educational Background and Skills

In the past, people entering this field needed a diploma or degree in French, English or journalism, but more and more employers now require a university degree in translation, which takes three or four years. In some cases, specialized knowledge in a field such as medicine or engineering may be required. Firms may provide additional on-the-job training to new recruits, under the supervision of a senior translator or interpreter. Essential qualities for these occupations are above-average writing skills and the ability to work within tight deadlines.

Nature of Supply

The most important source of supply to this occupation are graduates of translation, interpretation and linguistics programs. In recent years, temporary foreign workers have also supplemented the supply. Work in this field is available with large translation bureaus, government, international organizations and free-lance agencies.

Women's representation in this area increased from 61% in 1981 to 65% in 1986. People generally enter this occupation between the ages of 25 and 29 and begin to leave while in their 60s; the proportion under 25 years of age is lower than average. The majority of translators and interpreters are in the provinces of Quebec and Ontario.

Market Conditions and Job Prospects

Employment in this group does not appear to be susceptible to changing business conditions, which may be due to the high level of government employment.

Based on growth prospects for the public administration and services sector, the employment outlook for these occupations over the forecast period calls for a continuation of the above-average growth of the 1980s. Approximately 5,900 translators and interpreters will be needed to fill new jobs and replace personnel in existing jobs over the next six years. Demand will be particularly high for technical translators, due to the growing use of foreign language scientific and technical manuals.

Job opportunities tend to be stable throughout the year, but part-time employment is relatively common for translators and interpreters, more so than for other occupations. The growing use of computers in translation, particularly for technical material, will ease translators' tasks.

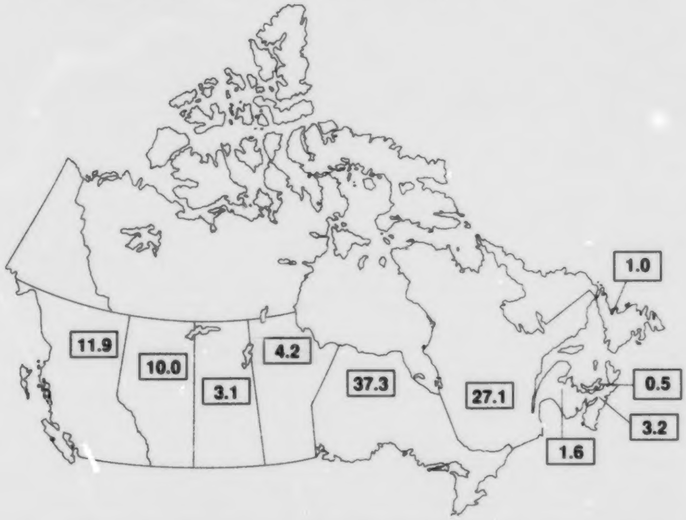
1985 Annual Earnings	$	
Lowest 10% of Workers	16,877	or less
Average Worker	31,352	
Highest 10% of Workers	45,702	or more

Source: 1986 Census

Coaches, Trainers and Instructors, Sports and Recreation 3370

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	23,843	4.4	3.3	17,663
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	46	54	53	44	3	43	57
	1986	43	57	44	53	3	48	52
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (75)
- Recreation (41)
- Education (15)
- Personal (9)

Public Administration (23)
- Municipal (20)
- Federal (2)
- Provincial (1)

Trade (1)

Coaches, Trainers and Instructors, Sports and Recreation

3370

Job Environment

This occupational group includes athletic coaches, trainers and physical training directors. Their job is to coach, train and direct athletes participating in team sports, individual competition and recreational sports. Other activities include administering athletic programs, negotiating contracts with players and giving instruction in the theoretical and practical aspects of sports and recreation. Working conditions vary according to the sport and the level of organization.

Educational Background and Skills

Although there are no specific entry requirements, most applicants are in good physical condition and have completed secondary school. Directors of physical education usually require a master's degree in physical education as well as a number of years of relevant experience. Professional coaches must be certified, but instructors often only need expertise in their chosen sport and the ability to instruct.

Nature of Supply

The majority of people enter this occupation before they are 24 years of age, and a large number leave before they are 30, indicating that many have a weak attachment to this occupation and see it as an entry-level position. This may partially explain why the incidence of part-time work is considerably above that of all occupations. The share of people in this field who are under 54 years of age is higher than average, perhaps because of the physical nature of the occupation. Women represent a growing majority in this group. Most coaches and trainers work in Quebec and Ontario.

Market Conditions and Job Prospects

The high incidence of employment by governments or government-funded agencies insulates this group from general economic conditions. The employment outlook calls for a continuation of above-average growth, based on prospects for the educational, recreational, municipal and other government sectors. This reflects expectations of higher income levels and increased leisure time activities among the general population.

Over the projection period, 12,500 positions will open up to replace those who will leave owing to retirement, death and returns to school and the household sector. A further 5,000 new jobs will also become available.

Coaches and instructors often work in the evening and on weekends, sometimes holding other jobs during the day. Employment is seasonal in certain sports.

1985 Annual Earnings	$	
Lowest 10% of Workers	9,750	or less
Average Worker	24,129	
Highest 10% of Workers	39,649	or more

Source: 1986 Census

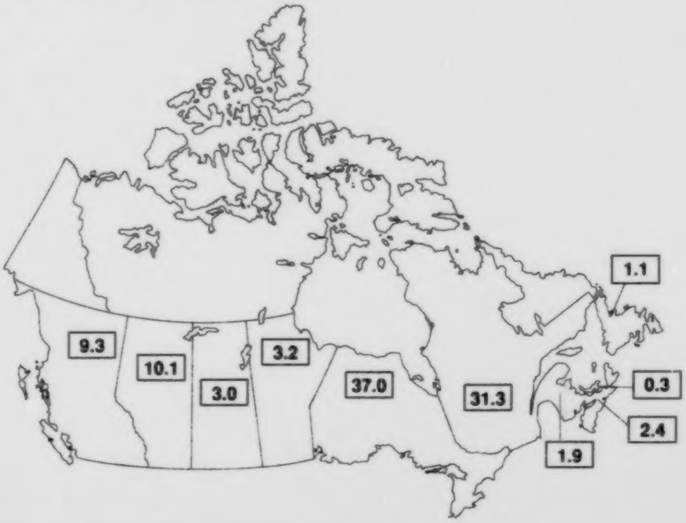
For further information, contact:

Coaching Association of Canada
1600 James Naismith Drive
Gloucester, Ontario K1B 5N4
(613) 748-5624

Secretaries and Stenographers 4111

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	443,905	2.8	1.6	309,795
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	1	99	28	64	8	82	18
	1986	1	99	18	74	8	79	21
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (45)
- Business (15)
- Education (11)
- Health and Welfare - Non-Hospital (8)

Public Administration (13)
- Provincial (6)
- Federal (4)
- Municipal (3)

Finance & Insurance & Real Estate (12)

Secretaries and Stenographers

4111

Job Environment

Secretaries, including clerk-stenographers, departmental, legal and medical secretaries, perform a variety of office duties such as typing, shorthand, answering telephones, opening mail, filing, photocopying and drafting letters. They also may be required to understand technical languages used in a particular profession, such as commerce, law or medicine.

The introduction of automated office equipment is redefining the role of a secretary into one that is more like an information worker. Personal computers are changing the structure of secretarial work by creating tasks using spreadsheets, graphics and database programs. Since word processors result in higher productivity, many traditional tasks of the secretary/typist are disappearing, but at the same time, new opportunities are being created in other areas.

Educational Background and Skills

The main training routes are through courses provided in secondary schools (or commercial secondary schools), vocational schools, and community and business colleges. While the basic requirement for entry is high school graduation, there is a growing demand for individuals with a college education. One- to three-year career programs are offered by community colleges in fields such as general secretary, medical secretary or legal secretary, although many employers provide on-the-job training. The Professional Secretaries Association has developed the Certified Professional Secretarial Program which provides the successful candidate with the designation C.P.S., recognized by employers. Most students graduating from secretarial college programs are enrolled in the general secretarial field of study. Graduates from related fields, who possess the necessary secretarial skills, may also enter this occupation.

Nature of Supply

The main source of supply for this group is the formal education system, and most entrants have secondary or some post-secondary education. Other sources include people re-entering the workforce.

Positions in this occupation are almost exclusively filled by women. In 1986, the average age was 36, up slightly from 1981. Generally, individuals enter between the ages of 17 and 24, and begin to leave between 30 and 65. Further training or education and demonstrably strong working skills provide opportunities for advancement and promotion into supervisory positions.

Market Conditions and Job Prospects

Employment growth for secretaries was higher than average over the 1981-to-1989 period. The relative stability of this occupation results both from the fact that it is an essential service and the additional functions now performed by secretaries with the aid of micro-computers. Growth in the services sector has also helped.

Since the early 1980s, employment in the occupation has grown at slightly more than the average rate, with high growth in the services sector being balanced by poor growth in public administration.

Over the 1989-to-1995 period, employment is expected to grow at the average rate as growth in the service sector slows down to average. Enhancement of opportunities exists for those who continue to take courses in computer technology.

Approximately 300,000 jobs are expected to be created mostly due to retiring employees or those leaving the occupation for other reasons.

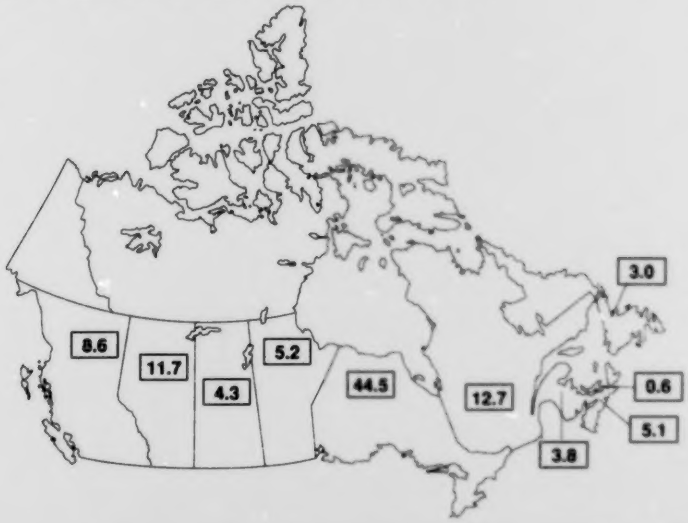
1985 Annual Earnings	$	
Lowest 10% of Workers	11,501	or less
Average Worker	18,411	
Highest 10% of Workers	25,529	or more

Source: 1986 Census

Typists and Clerk-Typists 4113

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	33,880	-12.0	-9.5	885
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	2	98	38	56	6	77	23
	1986	3	97	24	68	8	75	25
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (32)
- Business (11)
- Education (7)
- Hospital (7)

Public Administration (26)
- Provincial (11)
- Federal (9)
- Municipal (5)

Finance & Insurance & Real Estate (16)

Typists and Clerk-Typists

4113

Job Environment

This category includes clerk-typists, word processing operators, teletypists and transcribing-machine operators. Depending on their particular function, these workers may operate typewriters, word processors, composing machines, teleprinters or microcomputers in various environments ranging from a large typing pool to a small office. With the introduction of automated equipment and different software programs, typists must frequently upgrade their skills.

Educational Background and Skills

Typists and clerk-typists should be high-school graduates with good typing skills. While completion of high school is not mandatory, an oversupply of qualified candidates favours those who have done so. Those who continue their education to acquire additional skills in business machines, word processing or micro-computers, improve their chances for employment. Another valuable skill is the ability to type in both English and French. Many training programs in word processing and typing are offered by community colleges, vocational schools and private training institutions.

Nature of Supply

The main source of supply is the formal education system, and most entrants have secondary or some post-secondary education. Other sources include re-entrants from the household sector.

Positions in this occupation are held almost exclusively by women. In 1986, the average age was 34, up slightly from 1981. Generally, individuals enter this occupation between the ages of 17 and 24 and begin to leave the occupation any time between 30 and 65. Opportunities for advancement and promotion into supervisory positions exists for those who continue with training or education and who demonstrate strong working skills.

Market Conditions and Job Prospects

Employment for typists and clerk-typists actually declined over the 1981-to-1989 period. The negative impact of economic slowdowns is much more severe for this occupation and changes in technology as well as a high concentration in the public administration sector contributed to the problem.

Technological changes have shifted many functions of document preparation away from typists. The apparent difficulties in this market over the 1984-to-1988 period are reflected by high unemployment rates.

Over the 1989-to-1995 period, employment is expected to continue to fall, as new computer technology allows much of a document to be prepared by such individuals as secretaries with post-secondary education. The best opportunities exist for those who enhance their skills and take advantage of new opportunities being created by advances in computer technology. As well, predicted economic and technological conditions over the same period suggest that the number of jobs lost over this period will approximate 15,000. Layoffs are not expected, however, as there should be enough employees retiring or leaving the occupation to compensate for the lost jobs.

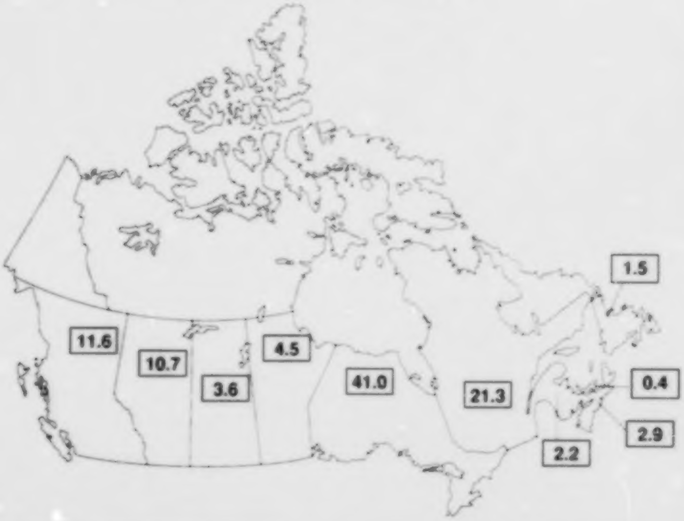
1985 Annual Earnings	$	
Lowest 10% of Workers	11,433	or less
Average Worker	17,589	
Highest 10% of Workers	24,174	or more

Source: 1986 Census

Bookkeepers and Accounting Clerks 4131

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	394,699	0.2	1.2	318,768
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	18	82	26	64	10	77	23
	1986	16	84	18	71	11	74	26
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (24)
- Retail (14)
- Wholesale (10)

Services (23)
- Business (10)
- Health and Welfare - Non-Hospital (3)
- Accommodation & Food (3)

Manufacturing (15)
- Food & Beverages (2)
- Printing & Publishing (2)
- Metal Fabricating (1)

Bookkeepers and Accounting Clerks

4131

Job Environment

This category includes accounting, audit, bookkeeping and payroll clerks. Bookkeepers are primarily responsible for keeping statistical and financial records, maintaining and verifying systematic records and preparing financial statements. Virtually all bookkeepers use calculating, cheque-writing and bookkeeping machines in performing their duties. Accounting clerks prepare account statements, budget documents and related material, and process, verify and balance financial records using a manual or computerized system.

The use of electronic data-processing equipment has led to the creation of specialized fields within this occupation, including the areas of accounts payable, accounts receivable, payroll, inventory and cost information. The enlarged capacity of data processors to maintain records has increased productivity in this area but may weaken the demand for clerical staff.

Educational Background and Skills

Most employers in this field look for individuals who have completed high school with courses in accounting, bookkeeping, typing, business and office procedures, although some may prefer people with work experience in a finance, bookkeeping or accounting environment. Courses in accounting and bookkeeping are offered by trade/vocational schools, community colleges, private educational institutions and continuing education programs at universities.

Nature of Supply

The main source of supply for this occupational group is the formal education system, while other sources include immigration, re-entrants from the household sector and the military.

This occupation is dominated by women, who account for over 80% of this workforce. In 1986 the average age was 37, up from the figure for 1981. Generally, individuals enter this occupation between the ages of 17 and 24 and begin to leave after the age of 30. For those who pursue further training and education and who perform their tasks well, there are opportunities for advancement into supervisory positions.

Market Conditions and Job Prospects

Employment growth for bookkeepers and accounting clerks was much less than the average for all occupations over the 1981-to-1989 period, largely because of the computerization of accounting systems. This occupation is also more sensitive to economic conditions than most other occupations. In spite of the difficulties experienced in this occupation unemployment has been reasonably low as these clerks have been successful in finding other jobs.

Between 1989 and 1995 employment growth is expected to improve but it will still be below the average, mainly because of continued technological change. The number of jobs available over this period should approximate 300,000, with the bulk arising from existing employees retiring, dying or leaving the occupation for other reasons. There has been a notable increase in part-time work recently, but there is no seasonal variation. Although the distribution of employment in this occupation is fairly diffuse, the trade, services and manufacturing sectors account for a considerable portion of jobs.

1985 Annual Earnings	$	
Lowest 10% of Workers	11,387	or less
Average Worker	19,286	
Highest 10% of Workers	28,358	or more

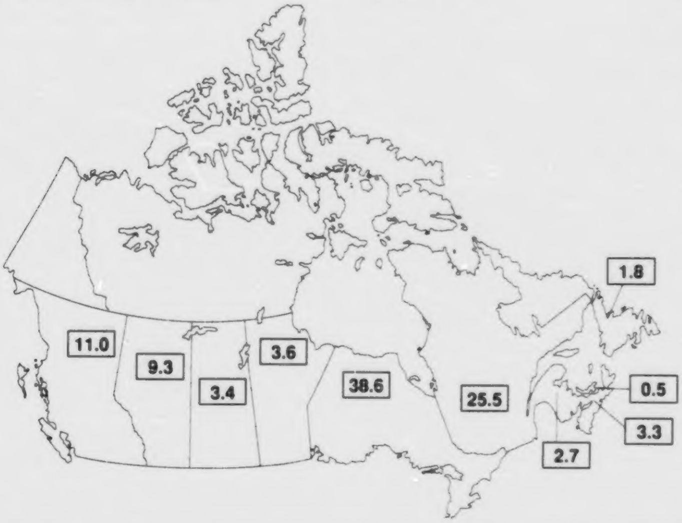
Source: 1986 Census

Cashiers and Tellers

4133

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	304,364	3.4	3.0	293,330
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	7	93	54	41	5	48	52
	1986	10	90	48	48	4	42	58
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (56)
- Retail (55)
- Wholesale (1)

Finance & Insurance & Real Estate (25)

Services (16)
- Accommodation & Food (11)
- Recreation (3)

Cashiers and Tellers

4133

Job Environment

This occupational group comprises bank tellers, disbursement clerks, clerical cashiers and grocery checkers. Bank tellers process customers' financial transactions, such as deposits, withdrawals and transfers of funds. Cashiers process sales transactions and receive payment for goods and services. With the introduction of computers into the workplace, the recording of transactions is now mainly performed electronically.

Educational Background and Skills

The basic educational requirement for these occupations is a high school diploma, preferably including business courses. Mathematical ability, accuracy, patience, a friendly personality and a capacity to work under pressure are considered assets. Employers usually provide on-the-job training lasting from one week to six months.

Nature of Supply

The major sources of supply to these occupations are secondary schools, trade/vocational schools, community colleges and private business schools. Some firms also hire university graduates. At the college level, the business administration and secretarial sciences fields of study are major avenues into this group.

Other sources of supply, such as re-entrants from the household sector and immigration, are of secondary importance.

This is considered an entry-level occupation which provides possibilities for advancement to such positions as customer service representative, supervisor of cashiers and tellers, and manager.

The majority of people in this group are under 30 years of age, and 90% are women. This profile has remained the same over the last five years. The low average age in this grouping reflects its categorization as an entry-level occupation. Because cashiers and tellers are involved in all types of economic activity, their geographical distribution corresponds to the distribution of the labour force in general.

Market Conditions and Job Prospects

Employment growth for cashiers and tellers was more than double the average for all occupations over the 1981-to-1989 period.

Between 1989 and 1995 employment is expected to continue to grow at a rate well above average, largely a result of greater emphasis on the provision of more personalized and varied services. Growth in some of the more traditional areas of this occupation will be limited as on-line computers, automated teller machines and electronic cash registers assume certain tasks previously performed by humans. Technological change has improved productivity in banking and the retail sector where, for example, laser beam scanners in supermarkets automatically price items, prepare bills and revise store inventory at the same time.

Employment among cashiers and tellers is resistent to changes in the economy and is therefore stable. Much of this work is part-time.

The number of jobs available over this period should approximate 300,000, with more than two-thirds arising from existing employees retiring, dying or leaving the occupation for other reasons.

1985 Annual Earnings	$	
Lowest 10% of Workers	7,412	or less
Average Worker	14,580	
Highest 10% of Workers	23,198	or more

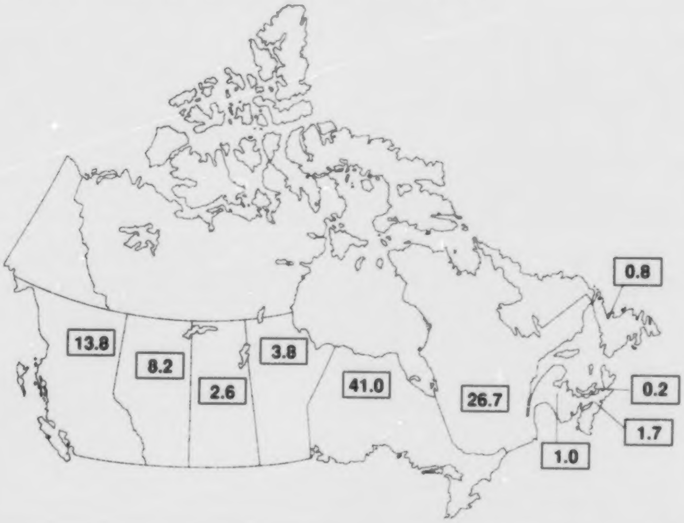
Source: 1986 Census

Insurance, Bank and Other Finance Clerks

4135

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	54,741	3.9	2.3	49,876
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	13	87	35	60	5	87	13
	1986	12	88	20	75	5	82	18
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Finance & Insurance & Real Estate (96) **Services** (1) **Public Administration** (1)

Insurance, Bank and Other Finance Clerks 4135

Job Environment

This occupational category includes a variety of clerks who process, verify and record financial information. Insurance clerks review insurance applications, calculate premiums, dividends and cash-surrender values, and adjust insurance policies. Bank clerks process loan and mortgage applications, check ledgers, keep records, sort deposit slips and cheques, rent safety-deposit boxes, and prepare and distribute bank account statements. Real-estate clerks compile rental, sales and management information. A finance clerk's duties include processing forms, compiling data, keeping records of transactions and receiving cheques and cash for deposit.

Educational Background and Skills

Entrants to this occupational group should have a high school diploma, possess good verbal skills, be able to work rapidly and accurately with figures and be familiar with computers and data-processing techniques. Some employers recruit graduates from trade/vocational schools, community colleges, private educational institutes and even universities. Most provide newly hired personnel with on-the-job training lasting between one and 24 months.

Nature of Supply

The main sources of supply to this occupation are re-entrants from the household sector and graduates from related fields of study. Those willing to pursue further training or education and who demonstrate initiative can move into other related occupations.

This group is predominantly composed of women and over the last five years their representation has held its high level. The proportion of people in this field between the ages of 25 and 54 has gone up during this period. Generally, people enter this occupation between the ages of 20 and 29 and retire at approximately 60 years of age, for an average career length of 30 to 40 years.

Market Conditions and Job Prospects

Employment growth for insurance, bank and other finance clerks was much better than average for all occupations over the 1981-to-1989 period. The apparent tightness in this market over the 1984-to-1988 period, is reflected by low unemployment. Between 1989 and 1995 employment is expected to continue to grow at a rate above average, largely as a result of growth in the finance sector.

Employment growth in this occupation is steady, as it is immune from swings in the business cycle. This is partially a result of the high concentration of employment in the stable finance sector. Increased computerization will continue to eliminate some functions of this group but it will also create new ones. The best job opportunities will be for people willing to upgrade their skills and master new technologies.

In general, economic conditions over the 1989-to-1995 period will be such that employment in this occupation will grow faster than average but slower than it did over the 1981-to-1989 period. The number of jobs available should approximate 50,000, the bulk of which will arise from existing employees retiring, dying or leaving the occupation for other reasons.

1985 Annual Earnings	$	
Lowest 10% of Workers	13,354	or less
Average Worker	18,762	
Highest 10% of Workers	25,368	or more

Source: 1986 Census

For further information, contact:

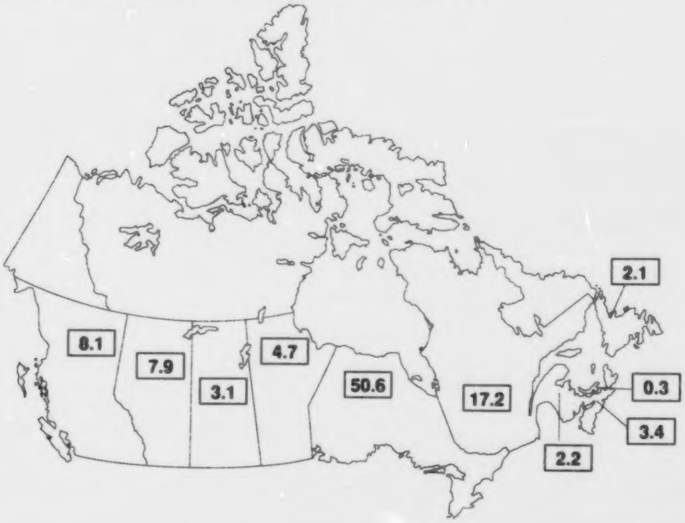
Metropolitan Insurance Company
Human Resources and Corporate Services
Suite 1700, 1 University Avenue
Toronto, Ontario M5J 2P2
(416) 862-8923

Statistical Clerks

4137

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,331	-4.8	-1.4	3,747
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	26	74	28	60	12	80	20
	1986	28	72	25	67	8	75	25
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (46)
- Federal (36)
- Provincial (8)
- Municipal (2)

Services (16)
- Business (7)
- Miscellaneous (2)
- Hospital (2)

Manufacturing (12)
- Printing & Publishing (5)
- Motor Vehicles & Trailers & Parts (1)

Statistical Clerks

4137

Job Environment

This occupational category is composed of actuarial, statistical research and census clerks. They compile and tabulate statistics for use in statistical studies and for the identification of trends from source documents; prepare reports on source materials; supply factual information to help interpret statistical studies; and verify the authenticity of source material employed for generating statistics. People in this occupation usually work in an office and use adding machines, calculators and computers.

Educational Background and Skills

While the basic requirements may vary according to the employer, the minimum qualification is usually high school graduation, preferably with a concentration in mathematical courses. As electronic data processing and micro-computers gain widespread use, new recruits should have above-average learning and reasoning capabilities in order to acquire new skills and to familiarize themselves with these electronic tools. Most firms provide their own on-the-job training, lasting between six and 12 months.

Nature of Supply

Most new entrants come to this occupational group with trade or college education in secretarial sciences or accounting/bookkeeping; reflecting a growing requirement for post-secondary education. Those interested in obtaining further training and education, can pursue promotion into such areas as technical support or research assistance.

Between 1981 and 1986, the representation of women in this field decreased from 74% to 72%. The age structure of the group is comparable to that of the labour force in general, although a slightly greater-than-average proportion were less than 25 years of age. Individuals enter the occupation between the ages of 18 and 28 and begin to retire in their 50s. Over half of statistical clerks are located in the province of Ontario.

Market Conditions and Job Prospects

Employment growth for statistical clerks was far less than average for all occupations between 1981 and 1989. Employment in this occupation began to fall in the early 1980s and continues to do so. This is a result of government cutbacks and technological advancements in data processing. Unemployment figures for this group have not been affected, however, as those laid off have been successful in finding employment elsewhere.

Over the 1989-to-1995 period, employment is expected to continue to fall, largely as a result of continued technological change. This occupational group is usually unaffected by changes in the economy, as nearly 50% of statistical clerks are employed in public administration, a generally stable sector. Most statistical/clerical work is full-time. The introduction of new technologies, such as mainframe computers and micro-processors, has eliminated some of the repetitive tasks performed by statistical clerks, and further technological innovation may change the skills required for these occupations, limiting employment growth.

Employment in this occupation will continue to fall over the 1989-to-1995 period, but not as quickly as it did between 1981 and 1989. The number of new jobs created over this period should approximate 3,700, as a large number of people are expected to leave the occupation for a variety of reasons.

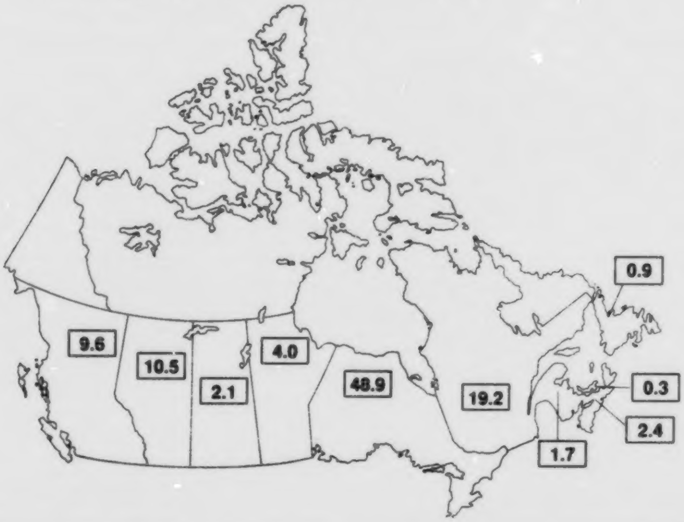
1985 Annual Earnings	$	
Lowest 10% of Workers	13,960	or less
Average Worker	22,177	
Highest 10% of Workers	31,324	or more

Source: 1986 Census

Electronic Data-Processing Equipment Operators 4143

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	128,454	7.2	5.0	158,653
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	21	79	36	61	3	87	13
	1986	20	80	26	70	4	85	15
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (27)
- Business (16)
- Education (5)
- Miscellaneous (2)

Public Administration (17)
- Federal (8)
- Provincial (6)
- Municipal (2)

Manufacturing (16)
- Printing & Publishing (2)
- Food & Beverages (2)
- Electrical Products (2)

Electronic Data-Processing Equipment Operators 4143

Job Environment

People who operate electronic or electro-mechanical machines to record, store, process and transcribe data to and from punch cards, paper tape, magnetic tape or other sources are part of this category. Computer operators, data processors and key-punch operators are some of the occupations. Computer operators execute instructions prepared by programmers, schedule programs entered through remote terminals, monitor peripheral machines and keep records of operating times. When a problem is encountered, they take corrective measures or report the malfunction to the appropriate maintenance people. Workers must contend with a variety of electronic machinery and may be exposed to machine-related noise. Shift work and overtime are occasionally required.

Educational Background and Skills

Typically, individuals entering these occupations have finished Grade 12 with mathematics. Some firms like to hire high school graduates and train them on the job for between six months and two years, while other firms may hire applicants with experience in data processing, who pass the company's qualifying exam. Graduation from a one- to three-year community college program is an asset.

Nature of Supply

Generally, occupations in this group do not require post-secondary education, although the significant majority with some post-secondary education enjoys a competitive advantage. Of those in this occupation who complete their university degrees, most specialize in the social sciences, especially commerce or psychology. Community college graduates are usually from the secretarial or computer science fields.

Individuals re-entering the labour force after some period of separation are also a significant source of supply; immigration is a minor contributor.

In the past, jobs in this occupation have been predominately held by women. Although the proportion of men increased between 1971 and 1981, it has held steady at about 20% since then. The majority of jobs are in Ontario (49%), Quebec (19%), British Columbia (10%) and Alberta (11%). The average age increased slightly from 1971 to 1981 and again in 1986 when 70% of workers were between 25 and 54 years old. Most individuals enter between 20 and 24 and quickly progress to other career-related occupations.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for above average growth into the mid-1990s, based on both growth prospects for the services, manufacturing and public administration sectors and upon the positive impact which changing technology, particularly computerization, is expected to have. Approximately 150,000 job openings will be generated in the next six years. Few of these will be due to deaths and retirements, as only a small proportion of employees are in the 54-plus age category. Instead most openings will result from new job growth and from workers leaving their jobs for such reasons as advancement.

The group is moderately susceptible to changes in general economic conditions. Part-time work has increased; however, the work is not seasonal.

Technological changes will continue to affect employment growth in this field. Although the growing use of micro- and personal computers lessens the demand for key-punch operators, on-line data-entry personnel and other operators should continue to see employment gains at least in the short term.

Earnings

Wages in this occupation vary with the functions performed and according to province. A Computer Operator I (junior level operator) assists in operating a computer, while a Computer Operator III (senior level operator) monitors and controls the overall operation of medium to large computers as well as performing some supervisory roles. The following table, based on a 1986 survey by Stevenson, Kellogg, Ernst and Whinney, illustrates 1986 average monthly pay rates at the three levels.

Computer Operator I	Computer Operator II	Computer Operator III
$1,541	$1,819	$2,113

1985 Annual Earnings	$	
Lowest 10% of Workers	12,680	or less
Average Worker	20,123	
Highest 10% of Workers	29,593	or more

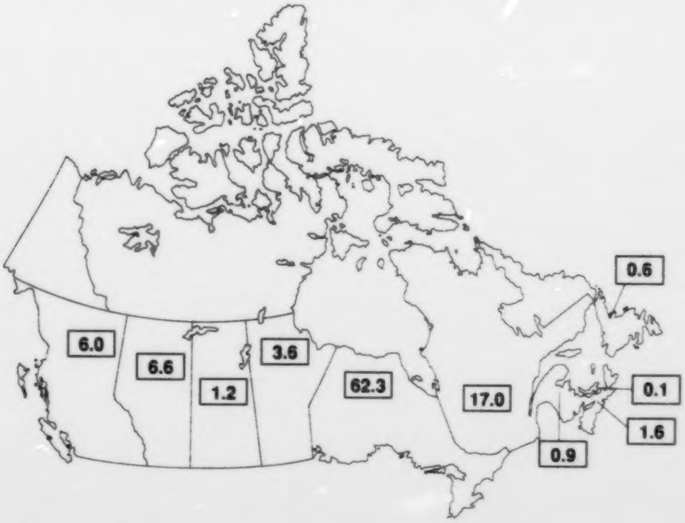
Source: 1986 Census

Production Clerks

4151

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	13,916	-2.8	-0.5	7,631
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	65	35	25	66	9	94	6
	1986	60	40	17	75	8	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (65)
- Motor Vehicles & Trailers & Parts (7)
- Electrical Products (7)
- Metal Fabricating (5)

Trade (12)
- Wholesale (6)
- Retail (6)

Services (8)
- Business (3)
- Recreation (2)
- Education (1)

Production Clerks

4151

Job Environment

Production clerks (including production co-ordinators, schedule clerks and expediters) co-ordinate and expedite the flow of work and materials between departments or plants. Orders for goods and services are examined, work and production schedules prepared, and records and reports compiled. Production clerks often work in a factory setting. A five-day work week of 37 to 40 hours is normal. Shift work is not uncommon.

Educational Background and Skills

The minimum qualification for this occupation is a high-school diploma, preferably with courses in mathematics, typing, business machines and accounting. In addition, most employers will provide new entrants with on-the-job training that may last from three to 12 months. Applicants should be able to keep good records and to read and follow detailed instructions correctly and quickly.

Nature of Supply

Graduates from the formal education system, especially secondary schools, trade-level vocational schools and community colleges, and re-entrants into the labour force are the main source of supply for these occupations. Usually people start working between the ages of 18 and 30. There is no specific age when workers tend to leave this occupation, although on average, men tend to leave sooner than women. Women have been entering this occupation in growing numbers: their representation doubled between 1971 and 1981, and increased again in 1986 to 40% of the production clerk labour force.

Market Conditions and Job Prospects

Since more than three-quarters of production clerks work in the manufacturing and trade sectors, economic conditions affect the group, as in 1981 and 1982 when a recession lowered their employment rates. Employment levels are also affected by technological change. Current projections indicate that there will be fewer jobs for production clerks five years from now. Most job openings will come as replacements for people who have left their positions, with about 8,000 openings anticipated over the next several years. Statistical Process Control (SPC) systems, computerized inventory systems, automated scheduling and other technological innovations continue to reduce demand for production clerks. The nature of work is full-time and is not affected by seasonal factors.

1985 Annual Earnings	$	
Lowest 10% of Workers	14,650	or less
Average Worker	24,978	
Highest 10% of Workers	36,207	or more

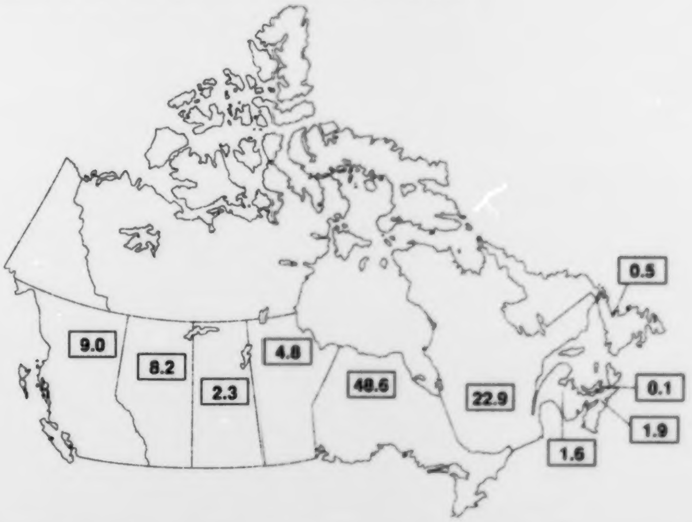
Source: 1986 Census

Shipping and Receiving Clerks

4153

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	96,210	1.0	1.3	66,641
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	83	17	39	50	11	88	12
	1986	83	17	31	60	9	86	14
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (42)
- Wholesale (24)
- Retail (18)

Manufacturing (40)
- Food & Beverages (27)
- Metal Fabricating (3)
- Clothing & Knitting (3)

Transport & Communications & Utilities (8)
- Miscellaneous (3)
- Storage (1)

Shipping and Receiving Clerks

4153

Job Environment

Occupations in this group include shippers, stock clerks, delivery and freight clerks, and warehouse receivers. A shipping clerk's main responsibilities are to co-ordinate the shipment of goods to customers and to keep up-to-date inventory records. Other duties include assembling, packing, addressing and loading goods for delivery, and preparing bills of lading, invoices and requisitions. This work is performed indoors and involves considerable physical activity such as lifting, carrying and reaching. Receiving clerks perform the reverse of these functions: they receive, unpack, inspect, sort, store and record incoming goods. In many instances, these responsibilities are combined in a single job.

Educational Background and Skills

There is no specific field of study that leads directly to employment in this group, although completion of secondary school is usually required.

Many people in this field start out as warehouse workers and become shippers after demonstrating competence, an ability to handle paperwork and attention to accuracy. Since most firms have their own operating standards, new shippers undergo on-the-job training varying from four to six weeks. Desirable qualities for shipping and receiving clerks are basic mathematical skills and an aptitude for detailed, accurate work. Shipping and receiving clerks must develop a knowledge of modes of transportation and their regulations.

Nature of Supply

Secondary school graduates are becoming the major source of supply to this occupation, although a high school diploma is not a strict requirement of employment. Some employers also hire trade/vocational school, community college and university graduates, but this usually occurs only where the clerical job is a stepping stone to supervisory and managerial positions. Other important sources of supply are individuals re-entering the labour force.

One out of three people in this occupation is under 25 years of age, a much higher proportion than in the labour force as a whole. Women represented 17% of all workers in this occupation in 1981 and in 1986, compared with 11% in 1971. Most shipping and receiving clerks work in Ontario (49%) and Quebec (23%).

Many clerks view this occupation as an entry-level one leading to a higher position. After familiarizing themselves with the industry and obtaining experience and training, they move into such positions as import managers, export managers, freight forwarders and sales representatives.

Market Conditions and Job Prospects

Employment in this occupation declined substantially in the early 1980s but is expected to attain average growth in the future. Since most shipping clerks are employed in the manufacturing and trade sectors, this occupation is sensitive to prevailing economic conditions.

About 8,000 new openings in this area are anticipated over the next six years. Replacement openings are also expected to be numerous, reflecting the high rate of turnover in this category. Labour market conditions for shipping clerks are at present slightly better than those experienced in other occupations.

The level of part-time employment increased noticeably between 1971 and 1981 but is still below the average. Work in this occupation is only slightly seasonal. Technological innovations such as point of sale (P.O.S.) systems with on-line inventory control features may limit employment growth in this occupation in the long run.

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**11,271**	**or less**
Average Worker	**20,632**	
Highest 10% of Workers	**31,449**	**or more**

Source: 1986 Census

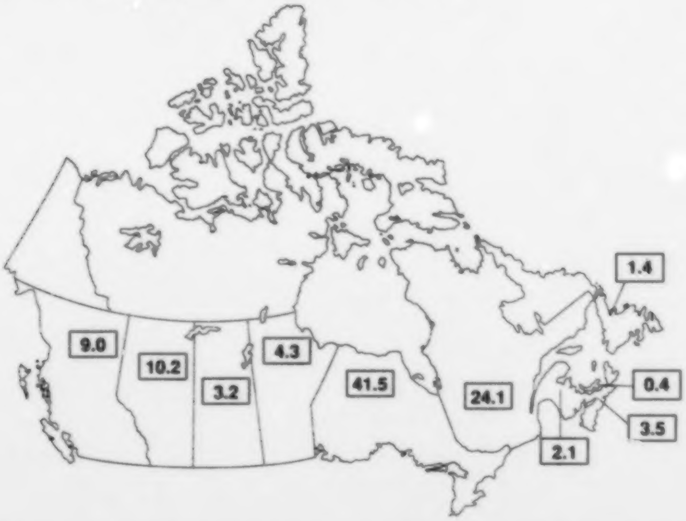
For further information, contact:

Canadian International Freight Forwarders
Association (CIFFA)
P.O. Box 850, Adelaide Postal Station
Toronto, Ontario M5C 2K1
(416) 567-4633

Stock Clerks and Related Occupations 4155

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	97,570	0.1	1.1	65,567
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	72	28	40	49	11	76	24
	1986	71	29	36	55	9	72	28
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (52)
- Retail (39)
- Wholesale (13)

Manufacturing (20)
- Motor Vehicles & Trailers & Parts (2)
- Food & Beverages (2)
- Electrical Products (2)

Services (11)
- Hospital (3)
- Education (3)
- Business (2)

Stock Clerks and Related Occupations

4155

Job Environment

Central supply clerk, inventory clerk, materiel keeper, purchasing clerk, and stockroom attendant are occupations representative of this classification. Stock clerks are the contact point between the customer department and the supplying department. They are responsible for receiving, storing and distributing supplies, and monitoring and replenishing inventory, as required. They must therefore have an orderly and systematic approach to locating items. Stock clerks also prepare the necessary paperwork to maintain an inventory. Depending on the employer and the type of stock, clerks may have to work in cold, drafty warehouses and handle large, heavy items.

Educational Background and Skills

Although many workers in this occupation have not completed high school, it is becoming increasingly necessary to begin with a high school diploma. Slightly more than one-half of employees in this occupation have at least a high school diploma. Employers usually provide new recruits with additional on-the-job training under the supervision of an experienced worker for a period varying from three to 24 months. Employers look for people with good mathematical skills, the ability to perform fast and accurate calculations and a capacity for detailed work. Candidates who have followed courses in business and administration at the trade or college level have an added advantage. Promotion and advancement, as in many other clerk positions, are possible for experienced clerks who are willing to undertake further education and training. Supervisory positions as well as administrative occupations then become accessible.

Nature of Supply

Graduates from the secondary school system are the main source of supply to this occupation. However, persons re-entering the labour force are also a substantial source of new stock clerks.

The age structure of workers in this occupation suggests that for many, the position of stock clerk represents the beginning of their careers, as a higher-than-average proportion are in the 15-to-24 age group. Women are still under-represented in this occupation, although the proportion of female stock clerks increased from 21% in 1971 to 29% in 1986.

Market Conditions and Job Prospects

Future employment growth is expected to be below average in this occupation. Since nearly 80% of stock clerks are employed in trade or manufacturing, fluctuations in economic conditions affecting these two industries also influence employment in this occupational group.

Employment growth for stock clerks has slowed as more and more computers are used to take and manage inventories. Computerized cash registers at retail outlets automatically monitor inventories and prepare orders to replenish depleted stocks. Equivalent systems in manufacturing companies perform similar tasks. As these automated systems become more standardized, they will be used more extensively, resulting in fewer job opportunities for stock clerks.

A total of 6,400 new jobs are projected over the next five years. Most openings will be created by replacement demand, which is expected to reach 59,000 positions over the forecast interval. Current labour market conditions are about average for stock clerks, although unemployment rates remain higher than pre-recession levels.

There has been a notable increase in the incidence of part-time work in this occupational group. In 1986, 29% of stock clerks worked part-time compared to 24% in 1981 and only 10% in 1971. Employment among stock clerks tends to be stable year-round.

1985 Annual Earnings	$	
Lowest 10% of Workers	11,893	or less
Average Worker	21,575	
Highest 10% of Workers	32,318	or more

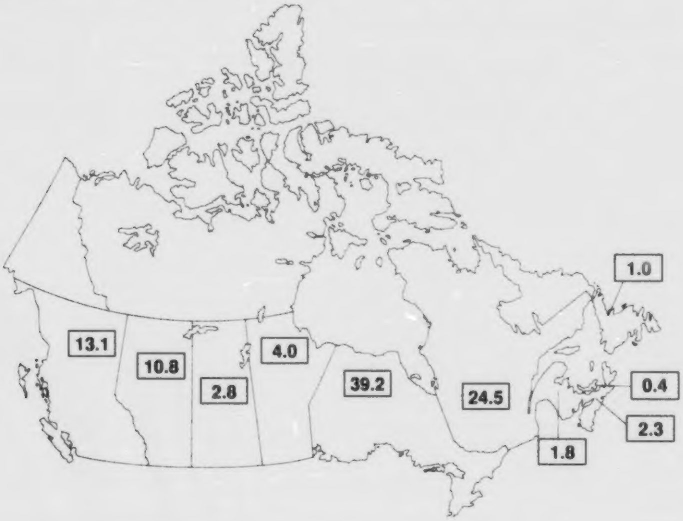
Source: 1986 Census

Receptionists and Information Clerks

4171

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	117,315	3.5	2.0	99,059
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	5	95	37	54	9	70	30
	1986	6	94	30	61	9	67	33
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (53)
- Health and Welfare - Non-Hospital (21)
- Hospital (9)
- Business (8)

Trade (10)
- Retail (6)
- Wholesale (5)

Public Administration (10)
- Federal (4)
- Provincial (4)
- Municipal (2)

Receptionists and Information Clerks

4171

Job Environment

Receptionists greet people coming into offices, hospitals and other establishments, ascertain the nature of the visit or the required service and direct the client to the appropriate place. They may also perform clerical duties such as scheduling and confirming appointments, answering correspondence, operating the telephone system, typing, filing and distributing mail. This occupational group includes admitting, appointment and telephone clerks. Admitting clerks record information on admittance forms and route them to appropriate departments. Receptionists often work alone in a reception area, although in small businesses and in some accommodation establishments they may be located at the front of the general office area.

Educational Background and Skills

The combination of education and personal suitability of the candidate is usually the most important qualification to become a receptionist and information clerk. People interested in working in this area should enjoy dealing with people and be friendly, polite and personable. Some employers prefer a candidate with a high-school diploma with concentration in commerce and typing courses; others might choose a candidate with less formal education but with previous office experience and related experience dealing with the public.

Nature of Supply

The majority of entrants into this occupation are people from the secondary school systems, persons re-entering the labour market and graduates from trade/vocational schools and community colleges. The graduates usually originate from secretarial and business administration courses. This occupation may be considered an entry-level occupation; it offers opportunities to learn the organization of the firm and the type of people or customer with whom the firm deals. There are possibilities for advancement into secretarial and other administrative positions for those who are willing to pursue further education and training.

This occupation is predominantly composed of women, a situation that has not changed much over the last fifteen years. The average age is lower than that of the labour force as a whole: nearly one receptionist out of three is between 15 and 24 years old.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for slightly faster-than-average growth over the forecast period. This is similar to the situation between 1971 and 1981. Although technology has affected the nature of many reception jobs by introducing electronic communication exchange systems and computers, it has not yet reduced the number required in the labour market. By 1995, it is expected that there will be about 15,000 new job openings for receptionists. An additional 84,000 job openings are anticipated to replace personnel leaving receptionist positions.

These occupations are not affected very much by changing business conditions. Employment is stable throughout the year, with much part-time work.

Earnings

The average monthly pay of receptionists in 1986 according to a survey of administrative, finance and data-processing positions conducted by Stevenson, Kellogg, Ernst and Whinney were as follows:

Canada	$1,361
British Columbia	1,428
Alberta	1,376
Saskatchewan	1,436
Manitoba	1,271
Ontario	1,365
Quebec	1,328
Atlantic Provinces	1,245

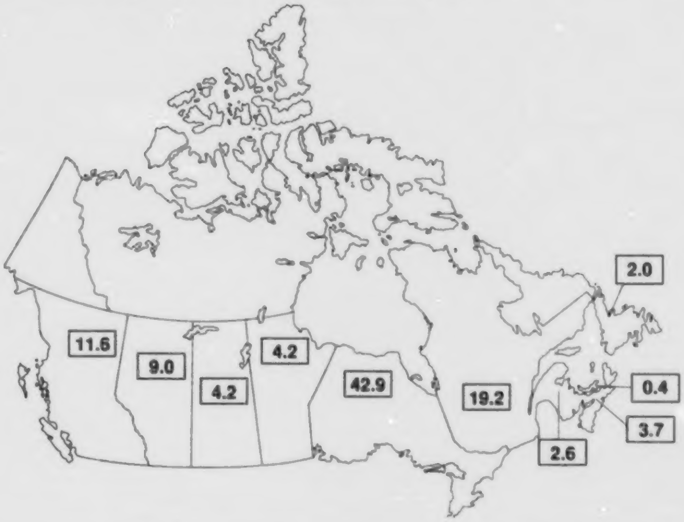
1985 Annual Earnings	$	
Lowest 10% of Workers	9,634	or less
Average Worker	16,440	
Highest 10% of Workers	24,150	or more

Source: 1986 Census

Mail and Postal Clerks 4173

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	50,096	2.3	1.2	18,801
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	45	55	24	59	17	69	31
	1986	44	56	14	71	15	70	30
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (75)
- Post Office (72)

Services (7)
- Business (4)
- Education (1)

Finance & Insurance & Real Estate (5)

Mail and Postal Clerks

4173

Job Environment

Mail sorters, postal office clerks and wicket-postal clerks are some of the occupations in this category. A mail clerk sorts and stamps the date and time of receipt on incoming mail, sorts outgoing mail and addresses mail using an address machine. Wicket-postal clerks sell and account for stamps and other supplies. They also register, certify and insure mail. Mail and postal clerks may be required to work in shifts.

Educational Background and Skills

The basic educational requirement for this occupation varies from completion of Grade 10 to a high-school diploma. On-the-job training usually lasts for one to three months. Mail and postal clerks should be able to perform routine work well under direction. Good eye-hand co-ordination, finger dexterity, a good memory and the ability to read rapidly and accurately are needed for both hand-sorting and machine-sorting of mail.

Nature of Supply

The secondary school system is the main source of supply to this field, supplemented by re-entrants to the labour force. For some, this occupation is an entry-level position leading to administrative or supervisory jobs; however, the higher-than-average proportion of people over 55 years suggests that for many this is a career.

During the 1970s, this occupation was predominantly male, but by 1981 55% of mail and postal clerks were women. This proportion has since remained steady.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for about average growth over the next six years, paralleling the average growth of the 1970s. Approximately 3,800 new job openings are expected, and the higher-than-average proportion of people in this field over 54 will result in a large number of replacement openings. Most jobs will be offered by Canada Post.

This occupation tends to be rather insulated from changing economic conditions although it is affected by decisions regarding the country's postal service. In 1988, rates of unemployment were much lower than average, but nearly one job in three is part-time. The introduction of coding machines, which has increased the volume of mail sorted per worker, will constrain future employment growth for this group.

1985 Annual Earnings	$	
Lowest 10% of Workers	13,096	or less
Average Worker	24,966	
Highest 10% of Workers	33,990	or more

Source: 1986 Census

For further information, contact:

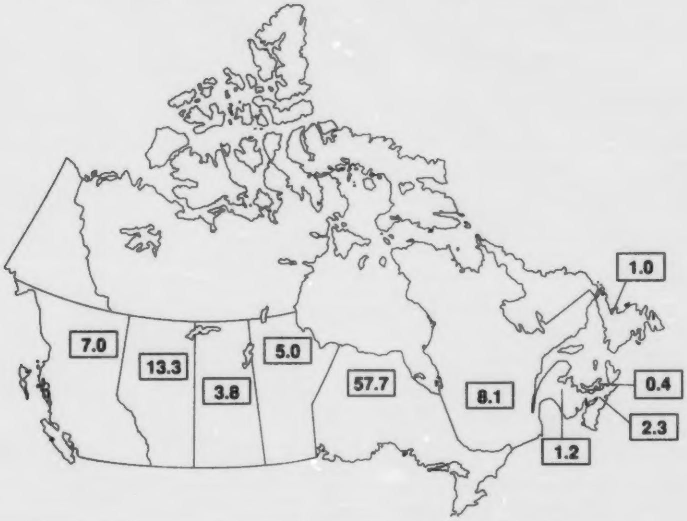
Canadian Postmasters and Assistants
Association/L'Association canadienne
des maîtres de poste et adjoints
281 Queen Mary Street
Ottawa, Ontario K1K 1X1
(613) 745-2095

Canada Post Corporation
Sir Alexander Campbell Building
Confederation Heights
Ottawa, Ontario
K1A 0B1

Claims Adjusters 4192

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	15,841	6.9	4.2	16,619
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	32	68	26	62	12	86	14
	1986	30	70	19	71	10	83	17
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Finance & Insurance & Real Estate (28)

Trade (23)
- Retail (17)
- Wholesale (6)

Public Administration (16)
- Provincial (8)
- Federal (7)
- Municipal (1)

Claims Adjusters

4192

Job Environment

Adjusters, compensation agents, complaint adjusters and repair clerks are included in this classification. Claims adjusters investigate and adjust claims for loss or damages filed by clients. They determine the company's liability and recommend a proper course of action. Although adjusters may issue cheques to be drawn against company funds, most submit their findings to claims examiners who review the submitted reports, check precedents or similar cases and then authorize payment. The investigative aspect of the job sometimes involves evening and weekend work.

Educational Background and Skills

A high school diploma is the usual minimum educational requirement in this field, although some employers may also require applicants with experience in related work. Graduates from the college level may be preferred over high school graduates. Adjusters are normally given on-the-job training. Mathematical aptitude, effective communication skills and a good memory are desirable characteristics. Adjusters must also be able to deal tactfully with clients in sometimes stressful situations.

Nature of Supply

Potential applicants originate for the most part in the formal education system. Career-oriented candidates have an advantage if they have a college or university degree in such a field as business administration. Individuals usually enter the occupation as clerical workers in the claims department of companies in the insurance or trade industries. With experience, a good knowledge of the industry, additional training and the will to study, an adjuster can move up to claims examiner, supervisor or claims manager.

The proportion of women in this occupation has increased from 54% in 1971 to 70% in 1986. The majority of adjusters (58%) work in the province of Ontario.

Market Conditions and Job Prospects

The employment outlook for this occupational group calls for somewhat faster-than-average growth over the forecast period. Over the next six years, approximately 4,400 new job openings will become available. Since an average proportion of claims adjusters is in the 54-plus age group, a moderate number of these openings will be created through retirements. However, a sizeable number of positions will be vacated by people progressing to new jobs during their careers.

Labour market conditions for this occupational group are favourable: during the 1981-to-1988 period, claims adjusters had a below-average unemployment rate, despite declines in employment in 1982.

Employment levels in these occupations tend to remain unaffected by changing business conditions. Although most jobs are full-time, the incidence of part-time work had jumped from 7% in 1971 to 14% ten years later, increasing further to 17% in 1986.

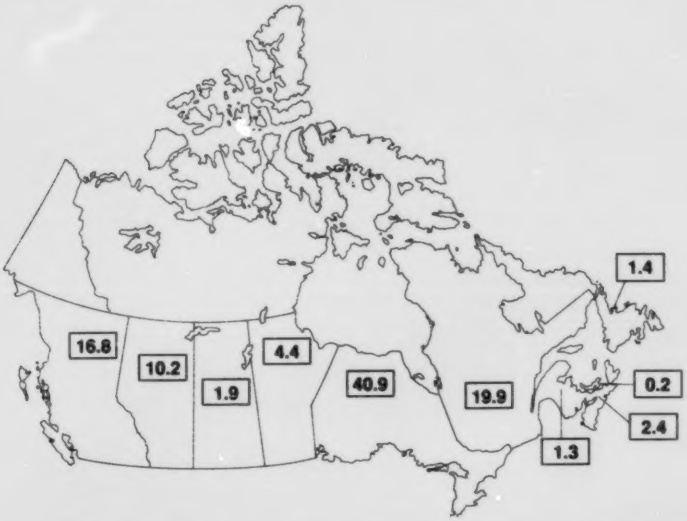
1985 Annual Earnings	$	
Lowest 10% of Workers	13,178	or less
Average Worker	22,647	
Highest 10% of Workers	34,636	or more

Source: 1986 Census

Travel Clerks, Ticket, Station and Freight Agents 4193

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	28,307	1.7	2.9	26,219
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	35	65	27	65	8	85	15
	1986	30	70	21	72	7	81	19
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (92)
- Miscellaneous Transport (55)
- Air Transport (29)
- Rail Transport (5)

Services (3)
- Miscellaneous (2)

Public Administration (2)
- Provincial (1)

Travel Clerks, Ticket, Station and Freight Agents

4193

Job Environment

Travel agents work in retail travel agencies, transportation and tourism firms, hotel chains and travel sections in department stores, providing travel information, planning itineraries and arranging accommodation for travellers. They make reservations and sell tickets to passengers for air, motor, rail or water transportation. Ticket agents also check baggage, calculate freight and express-package charges, attend boarding gates and handle telephone requests from customers. Ticket agents usually work on rotating shifts with days off, and some overtime work during evenings, weekends, and poor weather conditions may be required. During peak travel periods they work under tremendous pressure.

Educational Background and Skills

The minimum qualification necessary for this occupation is a high school diploma. However, applicants have a better chance of employment if they have taken a travel and tourism program from schools and colleges accredited by the Canadian Institute of Travel Counsellors. Employers usually provide on-the-job training or pre-employment training programs to new recruits (especially ticket agents) for a period varying from two to six months.

Good knowledge of geography, fluency in a second language, strong interpersonal skills and sales aptitude are assets.

Nature of Supply

Graduates from secondary schools and graduates from trade/vocational schools and community colleges in the fields of travel and tourism are the main source of supply for these occupations. People re-entering the labour force from the household sector also represent another significant source of supply.

Inexperienced workers often start with other clerical jobs in an agency and, after training, acquire a permanent position as a travel clerk. On average, people enter this occupation between the ages of 20 and 28. Many begin to leave soon afterwards, although others pursue this occupation as a long-term career goal. The average age of those employed in this field is slightly lower than the average for all occupations.

More and more women have entered this profession recently, with their representation increasing from 39% in 1971 to 66% in 1981 and 70% in 1986.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for above-average growth into the mid-1990s. During the 1970s, employment grew at a faster-than-average pace but slowed considerably in the early 1980s. Growth picked up again in the latter part of the decade, as disposable income grew and travel increased in popularity. Better-than-average growth is expected to continue into the early 1990s.

Some 5,300 new jobs in this group will be created within the next six years, while a further 18,000 openings will arise from the need to replace those leaving the field for different reasons. Employment patterns in this occupational group tend to be sensitive to changing economic conditions.

The travel services industry is being affected by increased automation, which integrates numerous travel services. Car rental companies have automated their reservations and inventory control operations, and computer and networking technology enables airline passengers to pay both lodging and car rental bills at the airport in one stop. The increased use of electronic equipment may adversely influence the future demand for some categories of ticket agents (e.g., airline passenger ticket agent).

Within a ten-year span, the proportion of part-time work in this occupational group has tripled to 15% in 1989, edging up further to 18% in 1986. This is about the same as the overall average in the labour market.

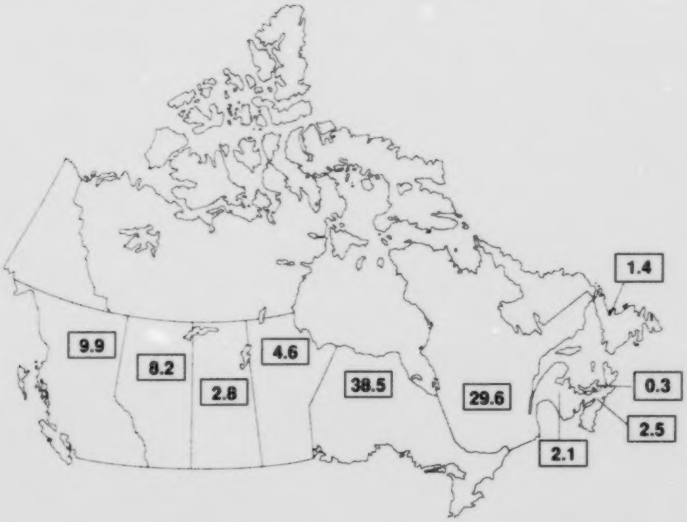
1985 Annual Earnings	$	
Lowest 10% of Workers	10,886	or less
Average Worker	21,594	
Highest 10% of Workers	32,960	or more

Source: 1986 Census

General Office Clerks 4197

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	166,045	2.5	1.1	126,273
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	19	81	31	58	11	78	22
	1986	19	81	21	68	11	77	23
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (24)
- Business (6)
- Hospital (6)
- Education (5)

Public Administration (23)
- Federal (10)
- Provincial (9)
- Municipal (3)

Trade (17)
- Retail (10)
- Wholesale (7)

General Office Clerks

4197

Job Environment

Administrative clerk, forms control clerk, process clerk and hospital clerk are typical occupations in this group. Office clerks perform duties that range from running errands, delivering messages, receiving and forwarding telephone or counter enquiries, handling mail and filing correspondence, to acting as special assistants in particular departments. In smaller offices, the nature of the work is varied, while in larger offices it tends to be more specialized and repetitive. Most of the work is done at a desk or counter.

Educational Background and Skills

Completion of a secondary school diploma with courses in business and commerce or secretarial sciences is generally preferred for employment in this occupational area. Additional skills in typing, basic mathematics and writing, some experience in operating business machines and personal qualities such as punctuality, dependability and adaptability to change are good qualifications for these occupations.

Nature of Supply

The main source of supply to this field is graduates from secondary and trade/vocational schools, community colleges, and private secretarial or business schools; and most entrants are between 18 and 25 years old. Areas of study leading to this occupation are typing, bookkeeping, business arithmetic and stenography. Re-entrants from the household sector represent another substantial source of supply. By providing the opportunity to acquire experience and additional skills, this occupation offers advancement to such specialized positions as accounting clerk or information clerk.

Individuals willing to pursue further training and education in business and commerce, will improve their chances of moving up to supervisory and managerial positions.

During the 1970s, this occupation attracted more and more women, so that by 1986 the female proportion of the group had increased from 62% to 81%.

Market Conditions and Job Prospects

The employment outlook for this occupation calls for below-average growth over the next five years, based on employment patterns in the services, public administration and trade sectors. This forecast echoes the trends during the 1970s and early 1980s, when employment grew at a slower-than-average rate. Over the projection period, nearly 11,000 new jobs will be generated. Almost 10 times that many openings are expected for replacement of departing personnel, since this is an occupational area where a significant number of workers move into and out of the workforce.

While the introduction of new office technologies (main frame computers, office purchasing systems and micro-computers) has increased overall office efficiency and individual productivity, it has altered the nature of many clerical positions and has reduced opportunities for general office clerks. For example, filing of letters and documents now is more often done by secretarial staff and typists at computers than by general office clerks.

Employment in this occupational category tends to be stable throughout the year, and has a larger-than-average proportion of part-time jobs.

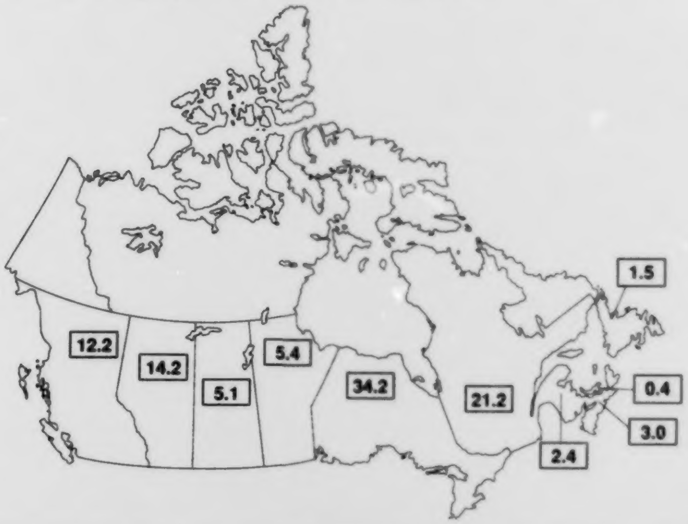
1985 Annual Earnings	$	
Lowest 10% of Workers	11,372	or less
Average Worker	19,603	
Highest 10% of Workers	28,241	or more

Source: 1986 Census

Supervisors: Sales Occupations, Commodities 5130

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	110,577	-1.4	-1.3	59,161
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	70	30	11	74	15	92	8
	1986	67	33	11	75	15	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (87)
- Retail (72)
- Wholesale (15)

Manufacturing (6)
- Food & Beverages (2)

Services (4)
- Accommodation & Food (1)
- Miscellaneous (1)

Supervisors: Sales Occupations, Commodities

5130

Job Environment

This group includes store proprietors, importers, wholesalers, sales supervisors, and others who conduct wholesale or retail businesses. Store proprietors and others in retail sales are responsible for various aspects of managing of a retail operation, including marketing, planning budgets and hiring and supervising staff. Those who work in wholesale establishments buy and maintain inventory, sell goods to retail outlets and perform related administrative duties.

Educational Background and Skills

The entrance requirements for these occupations vary according to the product or service being sold. Entrants increasingly must possess a community college diploma or university degree in business administration, marketing or merchandising. However, many areas of sales still permit salespersons to work their way up through the business without formal qualifications.

Nature of Supply

Related occupations are the primary source of supply to this field. A salesperson usually moves into a supervisory position after gaining a few years experience and establishing a good track record in sales. Other sources of supply include graduates, re-entrants and new employees from the household sectors, and immigrants.

The proportion of women in this occupational group nearly doubled from 17% in 1971 to 33% in 1986. Over the coming years, women are expected to form an even greater proportion of total employment as many of the growing number of women at the entry level work their way up into supervisory positions.

The majority of individuals enter these occupations between the ages of 30 and 34, reflecting the need for experience before becoming a supervisor. As a result, the average age of this group is higher than that of the labour force at large.

Market Conditions and Job Prospects

A number of factors have limited employment growth for sales supervisors in retail and wholesale trade. The trend toward smaller specialty shops permits sales managers and proprietors to oversee their sales staff directly, eliminating many of the supervisory positions that are needed in large department stores. Even in larger establishments, computerized registers and tracking systems allow sales managers to monitor the performance of sales staff with unprecedented precision, enabling the manager to absorb the duties of the supervisor. The recession of the early 1980s accelerated this trend, and as advanced technology becomes more affordable the employment base for commodity sales supervisors will further erode.

Employment of sales supervisors is expected to decline slowly over the next six years. Job opportunities will arise from the need to replace supervisors who leave this occupation, with nearly 68,000 openings anticipated between 1989 and 1995.

Since sales staff are often called upon to work weekends and evenings, supervisors must work similar hours. Few supervisory positions are part-time, however. Seven out of eight jobs in these occupations are in the trade sector, mostly in retail trade.

1985 Annual Earnings	$	
Lowest 10% of Workers	10,225	or less
Average Worker	24,827	
Highest 10% of Workers	40,594	or more

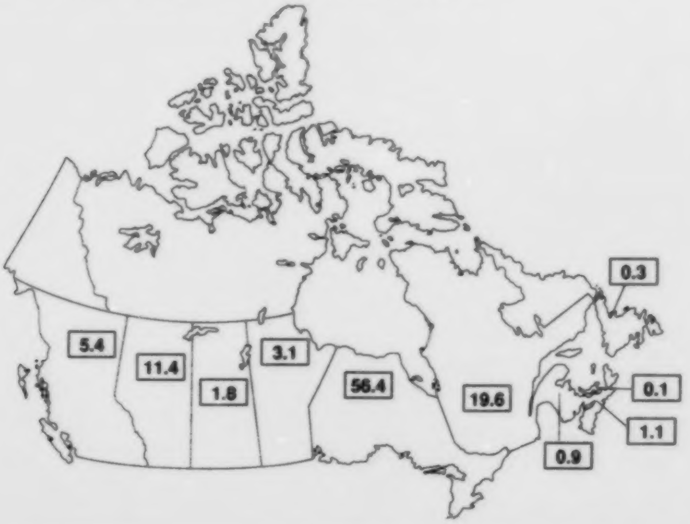
Source: 1986 Census

Technical Salespersons

5131

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	20,306	7.5	4.8	18,779
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	90	10	12	78	10	96	4
	1986	87	13	9	82	9	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (39)
- Wholesale (39)

Manufacturing (32)
- Machinery (9)
- Chemicals & Chemical Products (5)
- Electrical (5)

Services (15)
- Business (12)
- Miscellaneous (2)

Technical Salespersons

5131

Job Environment

This category includes data-processing and electronic equipment sales representatives, technical and implement salespersons, and sales engineers. They deal with a broad range of scientific and technical products and are considered among the elite of the sales occupations. They may also be involved in redesigning the equipment they are selling according to customers' specifications.

Educational Background and Skills

Employment in this occupation usually requires the completion of a community college or institute of technology program in a field of study related to the product or service being sold. An undergraduate degree in computer science, mechanical engineering or electrical engineering is an asset for salespersons in the electronic data-processing industry. Some employers may provide training programs lasting up to six months.

Technical salespersons must be well versed in the products they are selling and the markets they are serving. Good salesmanship is insufficient in this field without an understanding of product engineering and the customers' business needs.

Nature of Supply

One of the main sources of supply to this occupation is the post-secondary education system; labour force re-entrants, immigration and the military are minor sources of supply. Many people move into these jobs from related occupations, suggesting that this field is at the upper end of their career ladder. By contrast, relatively few choose to leave these occupations for others unless they are promoted.

This occupation is dominated by men, although the number of women is increasing slowly, having reached 13% in 1986.

People usually enter this occupation between the ages of 25 and 29, and leave between the ages of 55 and 59, implying an average career span of approximately 30 years. Typically, people in this field are older than those in other sales occupations, reflecting the need for additional education and experience.

Market Conditions and Job Prospects

During the 1970s, employment in this area increased at twice the all-occupation average. Growth during the 1980s was extremely strong and will remain well above average in the near future. In the next six years, approximately 6,600 new jobs will become available, and a further 12,000 openings will result from deaths, retirements, job changes or returns to households or to the educational system. Since technical salespersons tend to be older than other salespersons, there are large numbers of replacement positions in this field.

Although these occupations are concentrated in the trade and manufacturing sectors, they are associated with an extremely wide range of products and industries, and this insulates employment from wide fluctuations. Employment in these occupations has been slightly affected by technological changes, and opportunities are better in the areas of chemical, mechanical, electrical and electronic products. The growing interdependence between product/service development and marketing and sales is making technical salespersons increasingly valuable employees.

Virtually all work in these occupations is full-time, and there is little seasonal variation.

Earnings

According to the Sobeco Group, in 1986 junior technical sales representatives earned an average annual salary of $29,137, and senior salespersons received $39,223, on a salary-plus-commission basis. The salary ranges for these groups were, respectively $26,584 to $34,889 and $37,112 to $43,601.

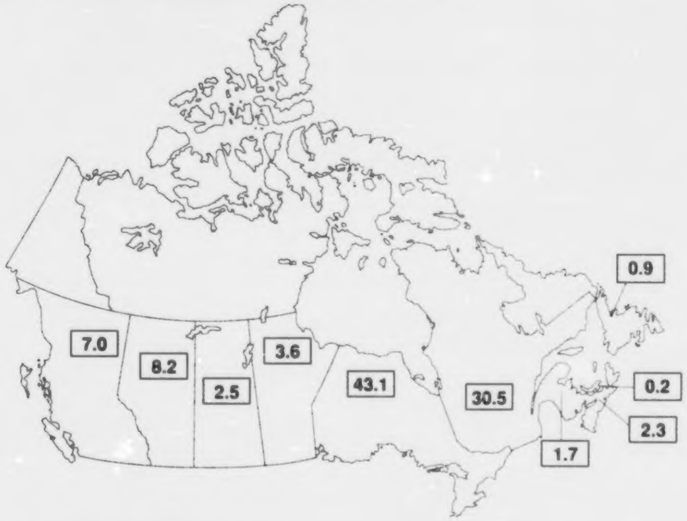
1985 Annual Earnings	$	
Lowest 10% of Workers	18,548	or less
Average Worker	35,350	
Highest 10% of Workers	53,499	or more

Source: 1986 Census

Commercial Travellers 5133

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	74,983	-3.6	0.7	51,816
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	90	10	10	77	13	94	6
	1986	84	16	9	79	12	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (44)
- Food & Beverages (9)
- Chemicals & Chemical Products (6)
- Printing & Publishing (5)

Trade (44)
- Wholesale (44)

Services (5)
- Business (3)
- Miscellaneous (1)

Commercial Travellers

5133

Job Environment

Commercial travellers vary from commercial agents and drug representatives to footwear, fuel and furniture salespersons. These occupations are concerned with selling commodities on a wholesale basis in an allotted geographical area to wholesale, retail, industrial, professional and other establishments. The salesperson's job is to service existing clients and to secure further customers. Commercial travellers also quote prices, arrange deliveries, resolve customer complaints and keep abreast of the latest product innovations. Their job requires them to travel and often work evenings and weekends.

Educational Background and Skills

While the minimum level of schooling necessary is secondary school graduation, a community college or university diploma in a related area, as well as courses in business and economics, are assets and may be required for some positions. Employers normally also require completion of on-the-job training programs lasting up to six months.

Nature of Supply

Sources of supply to this occupation include the post-secondary education system, new employees and re-entrants from the household sector and, to a lesser extent, immigrants. Prospective commercial travellers are often expected to have acquired some sales experience first.

This occupation continues to be dominated by men, although the number of women entering the field has been increasing steadily. A career as a commercial traveller lasts, on average, between 30 and 35 years, with entrance normally occurring between the ages of 25 and 29 and retirement occurring between the ages of 60 and 64. Educational and experience requirements account for the higher entry age and for an average age that is also above the all-occupation norm. The average age of commercial travellers and the age structure for this group have remained fairly stable since 1971.

Market Conditions and Job Prospects

This group experienced strong employment growth during the 1970s, but suffered a large employment loss in the first half of the 1980s. Current projections indicate modest employment growth of 4 to 5% over the forecast period, based on the outlook for the wholesale trade and manufacturing sectors. This translates into over 3,000 new job openings in the next six years, while a further 50,000 vacancies will result from personnel leaving these occupations for a variety of reasons including job opportunities in other occupational areas.

Labour market conditions for commercial travellers were favourable in 1986, as indicated by the lower-than-average unemployment rate. This group fared better than others in the labour market throughout the 1980s.

The incidence of part-time work increased modestly during the 1970s but still remains negligible. Work in this field does not vary seasonably.

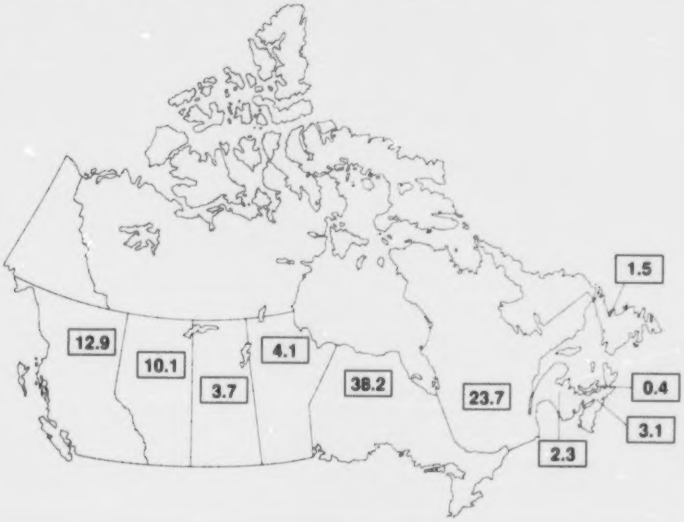
1985 Annual Earnings	$	
Lowest 10% of Workers	17,165	or less
Average Worker	32,049	
Highest 10% of Workers	48,555	or more

Source: 1986 Census

Sales Clerks and Salespersons, Commodities 5135

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	662,295	2.8	2.4	557,310
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	44	56	39	49	12	59	41
	1986	46	54	34	54	12	58	42
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (87)
- Retail (74)
- Wholesale (13)

Services (5)
- Accommodation & Food (1)
- Miscellaneous (1)
- Recreation (1)

Manufacturing (5)
- Food & Beverages (2)

Sales Clerks and Salespersons, Commodities

5135

Job Environment

This occupational group includes salespersons for a limitless variety of goods. In selling commodities, sales clerks provide direct service to customers and must be knowledgeable about the products they sell. Duties include keeping records of items sold, writing out sales receipts, tallying sales, dealing with complaints and refunds and operating cash registers. Many of the traditional functions, however, are now done electronically by multi-function cash registers. In many cases, this has freed sales clerks to perform a number of other tasks, such as inventory searches and completion of restocking orders. In keeping with customer shopping patterns, sales clerks usually work some evenings and Saturdays. Salespersons work almost exclusively indoors and on their feet.

Educational Background and Skills

This is one occupational area where personal suitability and general intelligence alone, even without completion of secondary school education, can secure entry. However, for those aspiring to advancement into supervisory positions, high school graduation is highly recommended. Post-secondary courses in retail management or business administration are recommended for advancement to managerial positions. Previous sales experience is a considerable asset in all cases.

Nature of Supply

The primary sources of supply to this predominantly female occupation are the secondary school system, immigration and, to a lesser extent, the post-secondary school system.

The average age of the participants in this occupational group is younger than that of the labour force as a whole. This reflects the lower educational requirements and the ease of job-entry of this group.

Market Conditions and Job Prospects

This group enjoyed substantial employment growth in past years. This trend is expected to decelerate somewhat but growth will still be well above average, as about 100,000 new jobs will become available in the next six years. Four times that many vacancies will result from personnel leaving the occupation for other jobs, advancement or due to a variety of other reasons. This large number of expected replacement openings is explained by the high rate of turnover among sales clerks: nearly two-thirds of sales clerks worked fewer than 30 hours per week in 1986. The work is seasonal, employment peaking during the Christmas season and dropping immediately after.

General economic conditions affect employment of commercial salespersons in the retail trade sector. Employment functions have been influenced by the introduction of electronic cash registers whose enhanced capabilities have required additional tasks of the sales clerks. Employment levels have not been affected by new technologies. The labour market conditions prevailing in this occupation have traditionally been slightly better than the average for all occupations.

1985 Annual Earnings	$	
Lowest 10% of Workers	8,376	or less
Average Worker	20,743	
Highest 10% of Workers	35,913	or more

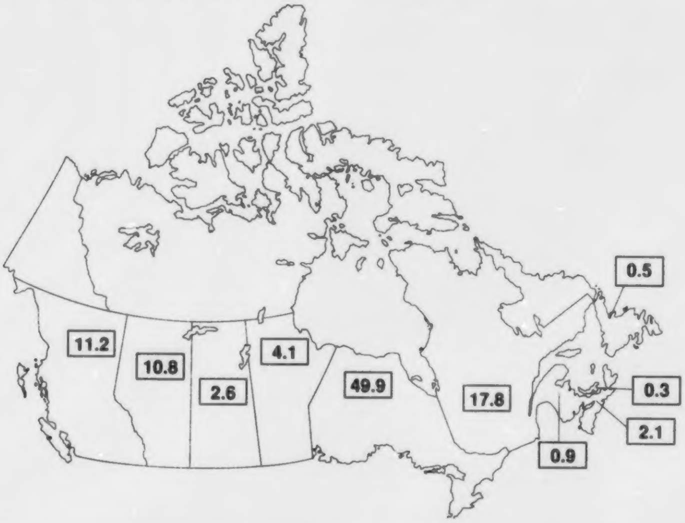
Source: 1986 Census

Supervisors: Sales Occupations, Services

5170

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	24,369	4.5	1.3	13,473
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	77	23	6	77	17	95	5
	1986	70	30	6	77	17	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Finance & Insurance & Real Estate (84)

Services (9)
- Business (8)

Transport & Communications & Utilities (2)

Supervisors: Sales Occupations, Services

5170

Job Environment

Bond brokers, financiers, investment dealers, securities traders and insurance brokers are some of the occupations that are included in this diverse category. They sell services such as insurance, securities, real estate and advertising. The largest portion of an independent broker's time is spent analyzing clients' needs and selecting appropriate policies or portfolios. The rest of their time is spent in soliciting new business. Supervisors of sales and service employees are also responsible for co-ordinating office activities and supervising employees. Some brokers, especially general insurance brokers, often work evenings in order to serve their clients.

Educational Background and Skills

Since these are supervisory positions, entry usually occurs only after several years of related experience. Qualifications vary according to the service being sold, but more and more, those who wish to enter this occupation must possess a community college diploma or a university degree in business administration, marketing or economics. Provincial licencing appropriate to the sector or to the type of service sold (e.g., real estate) is required for some of the occupations in this group. There are still many sales areas, however, in which people can work their way up through the business.

Nature of Supply

The major sources of supply to this occupation are other related occupations and the formal post-secondary education system. Minor sources of new supply include workers re-entering the labour market and immigrants.

This occupation is predominantly male, although the proportion of women has been increasing steadily to where women now comprise about one-third of the workforce. The majority of the individuals in this occupational group are located in Ontario, Quebec and British Columbia.

The average age of workers in these occupations is higher than the general workforce since post-secondary education and experience is typically required for entry. Normally, people enter this occupation between the ages of 25 and 29, and leave between the ages of 55 and 59, for an average career span of approximately 30 years.

Market Conditions and Job Prospects

Current projections indicate that there will be an average employment growth rate over the forecast period, with about 2,000 new and nearly 12,000 replacement job openings. Since a sizeable proportion of sales and services supervisors are in the 54-plus age group, retirements will result in a significant number of replacement openings.

As 84% of sales and services supervisors are employed in the stable finance, insurance and real estate industry, they tend not to be affected too much by changing economic conditions. And with the expansion of services offered by banks and financial institutions, employment opportunities for this group will improve.

Throughout the 1980s, these occupations fared well in the labour market and the trend so far is continuing. The majority of the labour force in this occupation works full-time. Seasonality does not affect employment in this occupational group.

1985 Annual Earnings	$	
Lowest 10% of Workers	15,117	or less
Average Worker	41,551	
Highest 10% of Workers	68,037	or more

Source: 1986 Census

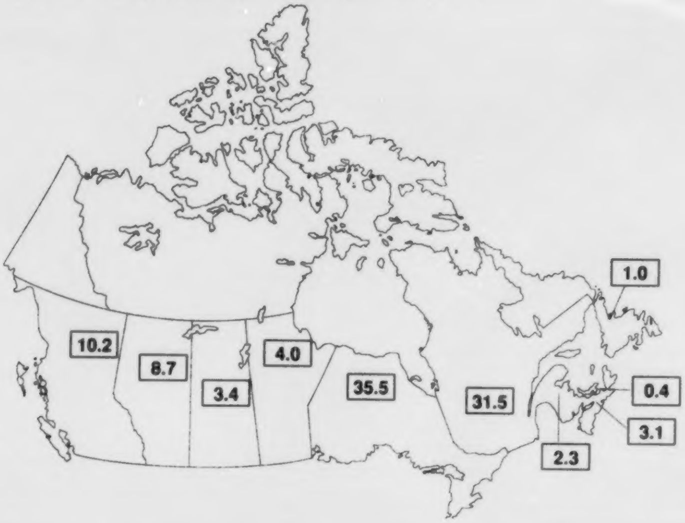
For further information, contact:

Metropolitan Insurance Company
Human Resources and Corporate Services
Suite 1700, 1 University Avenue
Toronto, Ontario M5J 2P2
(416) 862-8923

Insurance Sales Occupations 5171

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	57,208	3.2	1.2	30,381
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	72	28	15	71	14	93	7
	1986	68	32	9	77	14	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Finance & Insurance & Real Estate (100)

Insurance Sales Occupations

5171

Job Environment

Insurance agents and brokers, annuity representatives, claim inspectors, insurance appraisers and policy writers fall into this category. An insurance salesperson's main function is to sell suitable insurance policies to their clients. Other duties include explaining policy particulars, calculating premiums, drafting contracts and approving insurance applicants. Insurance agents' hours of work are largely self-determined, but the nature of the work often requires working evenings and weekends.

Educational Background and Skills

While there is no set level of formal education required to become an insurance agent, graduation from secondary school is pretty well a minimum requirement, and post-secondary education is definitely recommended. Insurance agents must know insurance principles and the types of insurance they want to sell. Examinations to obtain a provincial licence are required to conduct business. A prospective agent may complete a company-sponsored course or take one through home study or at a community college.

Nature of Supply

The secondary school system, the post-secondary education system, and re-entrants into the labour force provide the main sources of supply to this occupation. Other sources include immigrants and entrants from related occupations.

Although insurance brokers are predominantly male, the proportion of women has increased to one-third and is expected to continue to increase. The majority of insurance brokers live in Ontario although the province of Quebec has the highest concentration per capita.

Reflecting the secondary and post-secondary education obtained by most insurance salespersons as well as the special courses they must pass before being licensed to sell insurance, the average age for this group is higher than for the labour force at large. The average career for insurance brokers spans approximately 30 to 35 years, with people starting their careers between the ages of 25 and 34.

Market Conditions and Job Prospects

Future employment growth is expected to be about average. Approximately 4,300 new job openings and an additional 26,000 replacement openings are anticipated over the projection period.

All insurance salespersons work within the finance, insurance and real estate industry and, as an occupational group, their employment levels are not overly sensitive to economic trends. Currently, this group is faring well in the labour market, with little unemployment.

The introduction of office automation has realigned some of the tasks performed by insurance agents. Preparation of promotional material, issuing and processing of premiums, monitoring of birthdays and even basic underwriting can now be performed electronically. Nearly all the work is full-time as part-time opportunities are scarce.

Earnings

Since most insurance agents are paid on a commission basis, earnings vary greatly and depend on such details as the type of insurance sold, the company, location and sales volume. Life insurance salespeople are often paid a fixed salary ranging from $15,000 to $25,000 annually in the beginning, with commission sales supplementing income after they have gained some experience. Group life insurance agents may start with an annual base salary ranging from $20,000 to $35,000, plus a bonus. More experienced salespersons can earn annual base salaries ranging from $35,000 to $40,000 plus commission.

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**13,879**	**or less**
Average Worker	**29,549**	
Highest 10% of Workers	**50,589**	**or more**

Source: 1986 Census

For further information, contact:

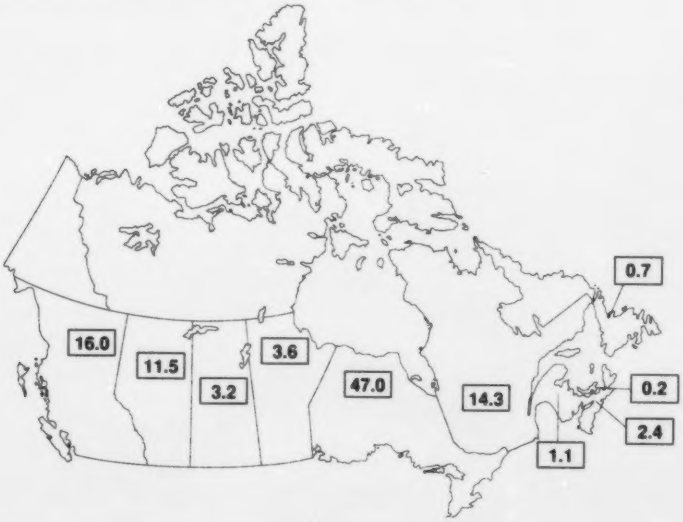
Metropolitan Insurance Company
Human Resources and Corporate Services
Suite 1700, 1 University Avenue
Toronto, Ontario M5J 2P2
(416) 862-8923

Real Estate Sales Occupations

5172

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	76,257	4.1	2.4	47,808
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	63	37	6	74	20	87	13
	1986	61	39	5	75	20	87	13
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Finance & Insurance & Real Estate (100)

Real Estate Sales Occupations

5172

Job Environment

Land appraisers, real estate agents and rental agents are typical members of this classification. Real estate agents are involved in the buying, selling, leasing and appraising of land and buildings. Their main task is to match owners of properties with people who wish to rent or buy property. After gaining experience with mortgage conditions, financing and legal documents concerning real estate transactions, many of them become brokers (owners or part-owners of a firm). Agents spend much of their time away from the office showing properties to prospective buyers, soliciting property sales listings from prospective vendors and assisting clients in making offers of purchase. They must often work evenings and weekends, when a large number of sales (especially residential) are transacted. The introduction of computer technology and multiple listings in this field has enabled agents to broaden their customer base and meet customers' needs more quickly than before.

Educational Background and Skills

Secondary school graduation is usually required in the real estate sales field. Prospective agents must pass a provincial licensing examination upon completion of an approved course of study. The course teaches agents about definitions and types of real estate, types of listings, various financing plans, commission rates, agency and contract law, provincial statutes affecting real estate, property evaluation and the Real Estate Board's Code of Ethics.

Nature of Supply

The primary sources of supply into this occupation are people re-entering the workforce and graduates from the secondary and post-secondary education systems. Many people also move into these jobs from other occupations.

The number of women in this occupational group is growing, although men still outnumber women by a wide margin. A typical career as a real estate agent lasts approximately 30 years, with entry normally occurring between the ages of 25 and 34.

Market Conditions and Job Prospects

During the 1970s employment in this category increased more quickly than the average for all occupations. Employment growth will be slower during the projection period than it was in the 1980s but will still be above average. In the next six years about 12,000 new jobs will become available, while another 36,000 will result from personnel leaving this field for other occupations or due to death, retirement, or a return to the household or the educational system.

Employment opportunities for real estate agents are determined by economic conditions affecting the housing market, such as interest rates, the age structure of the population and regional prosperity. Part-time work accounted for 13% of all employment in 1986, somewhat less than in the labour market as a whole.

Earnings

Earnings of real estate agents vary widely across Canada and depend strongly on regional and local market conditions. Salaries are paid on a commission basis, and are arrived by dividing a share of the selling cost (usually around 6%) in the case of residences among the selling broker, selling salesperson, purchasing broker and purchasing salesperson. Commissions are negotiable, however, and tend to be lower on more expensive homes. In 1985, the estimated annual salary for real estate agents was $20,000 to $32,000, while accredited real estate appraisers earned an average annual salary of $32,000.

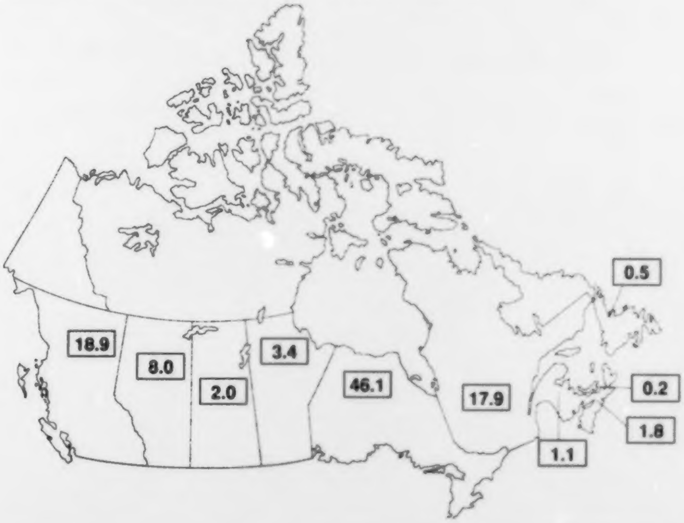
1985 Annual Earnings	$	
Lowest 10% of Workers	10,015	or less
Average Worker	31,382	
Highest 10% of Workers	56,304	or more

Source: 1986 Census

Sales Agents and Traders, Securities 5173

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	16,696	4.8	1.3	8,929
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	79	21	14	70	16	88	12
	1986	75	25	8	74	18	88	12
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Finance & Insurance & Real Estate (95)

Services (5)
- Business (5)

Sales Agents and Traders, Securities

5173

Job Environment

Typical professionals in this occupational group are securities traders, bond traders, mutual fund sales agents, investment dealers and trust representatives. They buy and sell securities, stocks and bonds, and buy into mutual funds on behalf of customers, maintaining files on customer portfolios. They also furnish clients with information on stock and bond market conditions and on corporations in which investment is contemplated. A dealer's working environment is usually an office. In contrast, traders work in fast-paced, high-pressure situations on or near a trading floor where they must make split-second decisions on buying and selling investments.

Educational Background and Skills

Employment in this occupation requires at least secondary school graduation. However, an undergraduate degree in business administration or economics is strongly recommended. Entrants to this field must complete the three- to six-month Canadian Securities Course and must be bondable. These occupations demand a high level of math skills and an ability to make quick judgments under high pressure.

Nature of Supply

The primary source of supply to this occupation is the formal post-secondary education system. Minor sources of supply include re-entrants from the household sector and immigrants.

There are far fewer securities traders and dealers younger than 25 years old today than there were 10 or 20 years ago, largely because of increased educational requirements. The average career lasts approximately 30 years, with entry occurring typically between the ages of 25 and 29.

The main markets for these occupations are Montreal, Toronto and Vancouver. Most traders and dealers are men, but the number of women in this area has increased significantly over the past several years, and women now make up about one-quarter of the occupational labour force.

Market Conditions and Job Prospects

Employment growth in securities sales was brisk through the first half of the 1980s. Current projections call for average employment growth, which will result in a total of 1,300 new jobs in the next six years. To replace existing personnel, 7,600 additional jobs will become available, as a higher-than-average proportion of people in these occupations are currently in the 54-plus age group and will soon retire. Employment growth for dealers is expected to be slower than for traders.

Economic conditions affect the investment and trading climate, and consequently affect employment opportunities for securities-related personnel in the finance, insurance and real estate sector: employment levels of sales occupations are less susceptible to economic fluctuations. As Canadian banks pursue expansion into global markets and broaden their range of financial services, the demand for banking personnel may increase. Deregulation of the financial industry may also lead to increased competition among banks and other financial institutions and to improved opportunities for securities agents and traders. Seasonal forces do not affect employment in this field. Most jobs are full-time.

Earnings

People in the investment industry with a master's degree and some years of experience earn about $50,000 annually. A stock market analyst's income (including commission), in Toronto, is about $65,000 to $70,000, while money market traders' wages range from $100,000 to $200,000 annually. Compensation for senior bond traders, senior group underwriters and senior brokers may be as high as $300,000 annually.

Those just entering this area earn considerably less. The 1984 National Graduate Survey reported average earnings of $21,038 for 1982 university graduates working in these occupations two years after graduation.

1985 Annual Earnings	$	
Lowest 10% of Workers	14,826	or less
Average Worker	50,395	
Highest 10% of Workers	N/A	

Source: 1986 Census

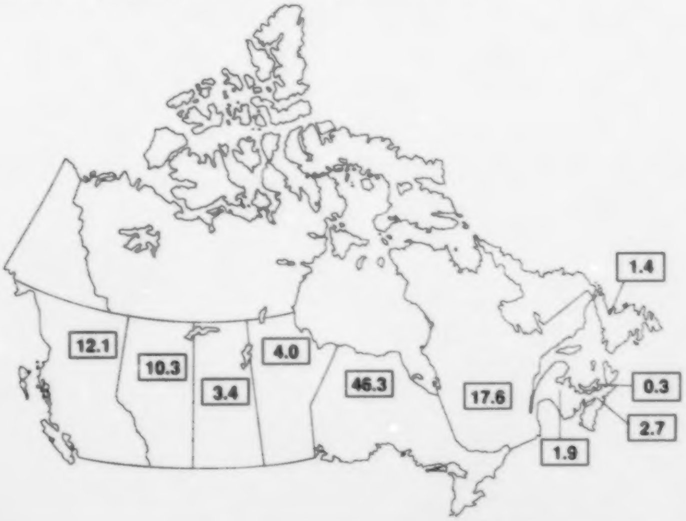
For further information, contact:

The Canadian Securities Institute
Suite 360, 33 Yonge Street
Toronto, Ontario M5E 1G4
(416) 364-9130

Advertising Salespersons 5174

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	10,730	3.4	2.4	6,578
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	64	36	18	73	10	88	12
	1986	58	41	14	77	9	88	12
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (40)
- Printing & Publishing (37)

Services (38)
- Business (36)

Transport & Communications & Utilities (15)
- Radio & TV Broadcasting (14)
- Telephone & Telegraph (1)

Advertising Salespersons

5174

Job Environment

Occupations in this group include advertising agent, sales representative, advertising broker and time salesperson. This work involves visiting businesses and advertising firms to sell advertising space or commercial air time on behalf of television, radio, publishing and other media companies.

Educational Background and Skills

The minimum level of education required for advertising salespersons is secondary school graduation. Completion of a community college or university program with emphasis on business administration, marketing, economics or merchandising, however, is increasingly demanded by employers; previous experience is also desirable. Advertising salespersons must be well versed in the operations of the medium in which they are selling and must be articulate and people-oriented.

Nature of Supply

The post-secondary education system is one of the main channels into this occupation. Other sources of supply include labour force re-entrants, immigrants and individuals from other occupations.

The proportion of female advertising salespersons has more than tripled since 1971, and women now constitute about 40% of people in this field. Advertising salespersons are primarily concentrated in the provinces of Quebec, Ontario and British Columbia, whose large urban centres support diverse media companies.

A typical career begins between the ages of 25 and 30 and lasts approximately 30 to 35 years.

Market Conditions and Job Prospects

This group experienced above-average employment growth during most of the 1980s. Current estimates indicate employment will grow by about 15% over the projection period, which is greater than the average for all occupations. As a result, approximately 1,600 new jobs will become available over the next six years, while a further 5,000 openings will result from personnel leaving the field.

Employment opportunities for this occupational group are resistant to fluctuations in the economy, since employment in printing, publishing, business services and radio and television broadcasting, where advertising salespersons are concentrated, is stable.

This group fared better than most in the early 1980s. Labour market conditions for advertising salespersons were favourable in 1986, with an unemployment rate much lower than that for all occupations.

In 1986, about one advertising salesperson out of seven was employed on a part-time basis. Work in these occupations is steady year-round.

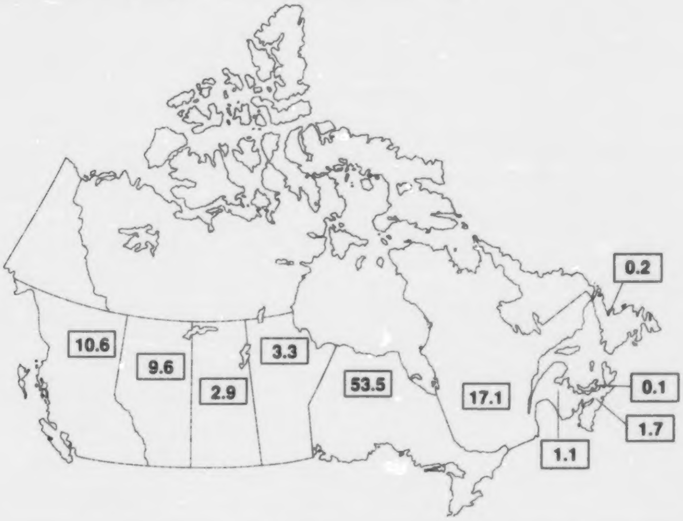
1985 Annual Earnings	$	
Lowest 10% of Workers	13,229	or less
Average Worker	30,352	
Highest 10% of Workers	50,728	or more

Source: 1986 Census

Business Services Sales 5177

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	5,713	1.6	2.9	3,802
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	75	25	12	79	9	94	6
	1986	66	34	10	79	11	91	9
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (40)
- Miscellaneous Transport (16)
- Air Transport (8)
- Telephone & Telegraph (8)

Services (31)
- Business (21)
- Accommodation & Food (4)
- Miscellaneous (4)

Manufacturing (11)
- Printing & Publishing (9)

Business Services Sales

5177

Job Environment

Collection-agency salespersons, freight representatives, hotel service sales representatives and security services sales representatives are examples of jobs in this occupational classification. Salespersons in this group sell any of a wide range of business services such as building maintenance, credit reporting, bookkeeping, security, printing, telecommunications and other services that increase business efficiency. They must know their own services and their customers' businesses well in order to explain the advantages of their services to prospective buyers and to respond adequately to customers' criticisms or suggestions. Travelling is often required in this job, and a 40-hour work week is normal.

Educational Background and Skills

Although the minimum educational requirement for business service representatives is secondary school graduation, completion of post-secondary courses in business administration or economics is highly recommended. By working their way up through a company, business service representatives gain a thorough knowledge of the service they sell.

Nature of Supply

Secondary and post-secondary institutions are the main channels into this occupation, with labour force re-entrants and immigrants constituting additional sources of supply. Entry into this field normally occurs between the ages of 25 and 29, and many regard these jobs as entry-level positions in their careers. Workers in this group often depart for advancement into related supervisory and managerial positions after a number of years.

Most business service representatives are in the provinces of Ontario, Alberta and British Columbia. The number of women in this field has been steadily increasing, and today women occupy about one-third of all positions.

Market Conditions and Job Prospects

Employment in this area grew faster than the average for all occupations during the 1970s but declined during the early 1980s. Current projections call for about 1,000 new jobs over the next six years, representing a return to faster-than-average growth. A further 2,700 openings will result from personnel leaving the field for various reasons.

Business services salespersons are found in all industries, but are concentrated in the transportation, storage, communication, utilities and service industries. The relative stability of these industries ensures that employment in this category is fairly stable as well, although the 1981-to-1982 recession caused employment levels to falter. Recent labour market conditions have not been favourable for this occupational area (its unemployment rate was above average during the early 1980s), but they have shown signs of improvement.

Work in these occupations is mainly full-time and steady year round.

1985 Annual Earnings	$	
Lowest 10% of Workers	16,362	or less
Average Worker	30,920	
Highest 10% of Workers	46,464	or more

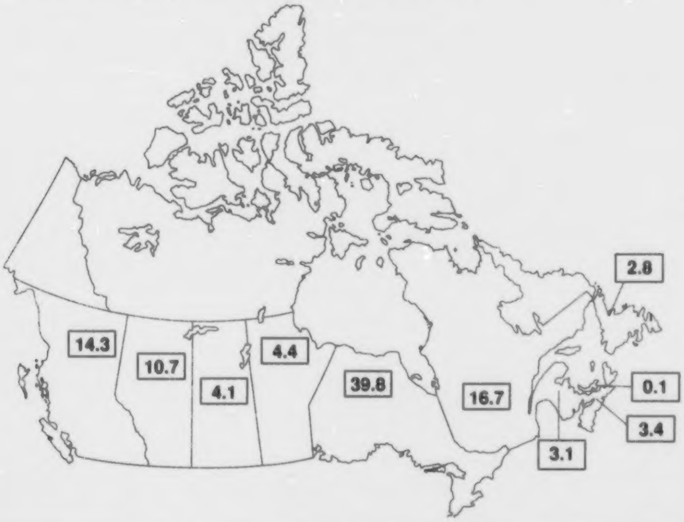
Source: 1986 Census

Fire-Fighting Occupations

6111

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	26,424	0.5	0.4	13,774
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	9	83	8	98	2
	1986	99	1	6	86	8	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (89)
- Municipal (79)
- Federal (5)
- Provincial (5)

Forestry (4)

Manufacturing (2)

Fire-Fighting Occupations

6111

Job Environment

This occupational group is concerned with fighting fires and protecting lives and property against fire. When not extinguishing fires, fire-fighters maintain equipment, respond to other emergency calls, and sometimes administer paramedical aid. The work in this occupation is dangerous and physically demanding, often involving exposure to smoke and hazardous gases.

Educational Background and Skills

Most fire-fighters are trained on the job. Since fire-fighting is primarily a municipal responsibility, entrance criteria and training procedures vary between communities. In general, however, applicants must have 20/20 vision, possess a driver's licence, be physically fit, and meet certain height and weight requirements. The minimum education required is usually Grade 12, with a background in physics, mathematics and chemistry. Preference may be given to applicants who are graduates of community college courses in fire prevention and safety, and a knowledge of first aid and mechanics is an asset. The formal training of recruits can last from one to 12 weeks and is usually followed by a probationary period of six to 18 months. In-service training may continue throughout the fire-fighter's work life.

Nature of Supply

Of the university graduates entering this occupation, most hold degrees in forestry or physical education. Community college graduates generally have completed programs in protection/correction or forestry technologies.

In 1986 only 1% of fire-fighters were women, but this proportion may increase in coming years, owing to the recent removal of some recruitment restrictions. The average age of fire-fighters was 39 in 1986, virtually unchanged from 5 years earlier. Most people enter this profession between the ages of 25 and 34 and begin to retire at age 50, for a career length of at least 15 to 25 years. Since small communities often rely on volunteer fire departments, employment opportunities are primarily limited to large municipalities. The possibility of advancement and training increases with community size and departmental resources. The person-per-fire-fighter ratio is approximately the same in each province.

Market Conditions and Job Prospects

Employment growth for fire-fighters was lower than the average for all occupations over the 1981-to-1989 period. Owing to the institutional nature of this occupation, employment is fairly insulated from economic swings and is more dependent on population size and government spending. Due to government budgetary restraints, employment did not grow at all during the 1980s. The stability of this market is reflected by the very low and constant rate of unemployment.

Between 1989 and 1995, employment is expected to grow at a steady but below-average rate, largely the result of demographic rather than economic factors. There is no seasonal or part-time employment in this field. Technological innovation has been of assistance to fire-fighters, but has not affected employment.

Conditions over the next six years will produce slower-than-average employment growth in this occupation. The number of new jobs created over this period should approximate 14,000, the majority of which will be replacement positions.

Earnings

Pay ranges, which vary more in this occupational group than in most occupations, depend on position and the population served. Fire chiefs in large cities are generally paid slightly more than twice the salary of a first-class fire-fighter, whose annual salary ranges from $20,800 to $37,600. (Data from International Association of Firefighters, 1986.)

1985 Annual Earnings	$	
Lowest 10% of Workers	26,740	or less
Average Worker	35,719	
Highest 10% of Workers	44,482	or more

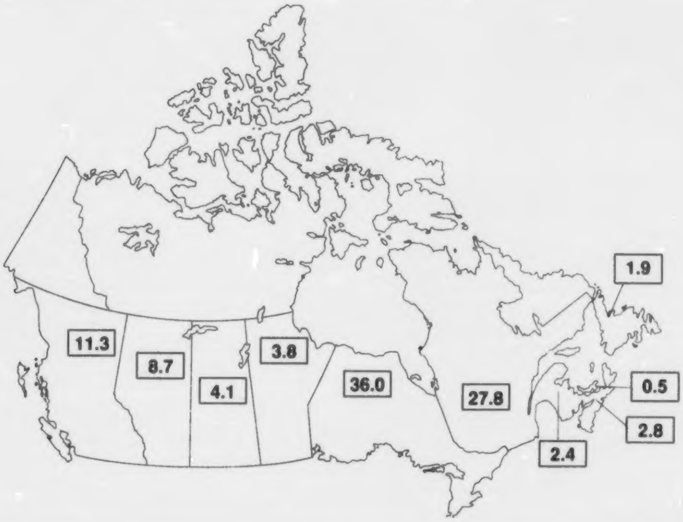
Source: 1986 Census

Police Officers and Detectives, Government

6112

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	57,378	0.3	0.6	30,789
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	96	4	12	83	5	98	2
	1986	94	6	7	88	5	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Public Administration (100)
- Municipal (54)
- Federal (26)
- Provincial (20)

Police Officers and Detectives, Government

6112

Job Environment

This occupational group includes all law enforcement personnel in Canada, including provincial police constables and detectives and the Royal Canadian Mounted Police (RCMP). The police constable's responsibility is to protect life, maintain peace, enforce laws and provide assistance in any type of emergency. RCMP responsibilities, which vary according to the location, involve advanced ballistics, toxicology and criminology. The skill mix of police specialists is increasing, as technical advances continue to affect the methodology used in police work. With the exception of administrative officers, police constables work outdoors, often in dangerous situations. A position as police constable can lead to administrative and management jobs.

Educational Background and Skills

Recruitment requirements and training vary across Canada. Basic qualifications include Canadian citizenship, good physical condition, a minimum age of 18 years, a valid driver's licence and Grade 12 or the equivalent. Preference is increasingly given to candidates with post-secondary education, especially in related fields. Previous experience in the military or in an occupation involving interpersonal skills is also an asset. Recruitment procedures include various tests (e.g., fitness) and a medical examination. Recruitment is followed by three weeks to six months of physical, technical and general training, which may in turn be supplemented by field training. Depending on the force, advanced courses of instruction may be available throughout the police officer's career. Advancement normally occurs from within the force and depends on individual leadership qualities, initiative and service experience.

Nature of Supply

Most recruits are from the formal education system, with the military supplying limited numbers. A large proportion of student recruits are graduates of community college programs in protection and correction.

In 1986, 6% of police officers were women, an increase over the number in 1981. Most people employed in this field are between the ages of 21 and 41; the average age in 1986 was 37, an increase over 1981. Withdrawals from this area start around age 36, suggesting a relatively short career. The provincial distribution of police officers is roughly proportional to that of the population as a whole.

Market Conditions and Job Prospects

Employment growth for police officers and detectives was lower than the average for all occupations between 1981 and 1989. Owing to the institutional nature of this occupation, employment is more sensitive to demographic than to economic changes.

Government restraint hindered employment growth of this occupation throughout the 1980s, despite the rebound in the economy. The stability of this market is reflected in the very low and constant rate of unemployment.

Over the 1989-to-1995 period, employment is expected to continue to grow at a steady but below-average rate. There is no seasonal or part-time employment in this occupation. Changing technology, including increased computer use, has been helpful in crime prevention and other police work but has not greatly affected employment opportunities.

In general, social and demographic conditions over the projection period will lead to slower-than-average employment growth in this occupation, similar to the situation in the 1981-to-1989 period. The number of job openings over this period should approximate 30,000, with the bulk arising from existing employees retiring, dying or leaving the occupation for other reasons.

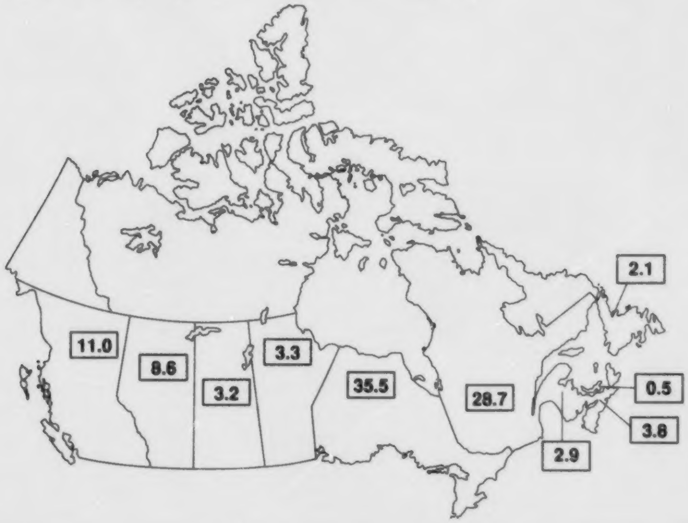
1985 Annual Earnings	$	
Lowest 10% of Workers	26,435	or less
Average Worker	36,858	
Highest 10% of Workers	45,720	or more

Source: 1986 Census

Guards and Related Security Occupations 6115

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	90,898	2.3	1.5	55,269
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	83	17	21	48	31	76	24
	1986	80	20	20	55	25	72	28
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (54)
- Business (37)
- Education (8)
- Accommodation & Food (2)

Public Administration (28)
- Provincial (12)
- Federal (9)
- Municipal (7)

Manufacturing (6)

Guards and Related Security Occupations

6115

Job Environment

This occupational group includes correctional officers, plant guards and administrative officers. Correctional officers are responsible for maintaining security and attending to the daily welfare of inmates. They are trained to deal with dangerous situations, use tactical weapons and practise first aid and fire prevention. Guards and other related security occupations provide additional security to factories, warehouses and other establishments. Members of this occupational group often have to work at night.

Educational Background and Skills

Employment requirements and training vary considerably according to the province and the kind of position. Secondary school graduation is usually required, although Grade 10 or Grade 11 is acceptable in some provinces. Candidates with a post-secondary education, such as a community college program in corrections, or work experience in a related field are preferred. Newfoundland requires completion of a six-week correctional officer training program at a community college prior to employment. Depending on the position, candidates may also have to hold a valid driver's licence, be bondable or pass a physical examination. Occupational training is normally received on the job, and can last for two weeks to three months. Institutions are increasingly training officers in behavioural disorders and their control, as well as in other human relations areas.

Nature of Supply

Most people enter this field through the formal education system (primarily from secondary school programs), although a growing proportion of entrants have successfully completed a protection/correction course offered by community colleges.

The proportion of women in this area is comparatively low, but more institutions are hiring women, and their representation increased from 17% in 1981 to 20% in 1986. The proportion of guards and other security personnel over 54 years of age is twice as high as the all-occupation average, reflecting the tendency of this occupation to absorb (retired) workers from other occupations. Current statistics suggest that many people enter this occupation between the ages of 20 and 24, although entry may occur at any age up to retirement.

Market Conditions and Job Prospects

The institutional nature of this occupation ensures steady employment conditions. Employment growth over the 1981-to-1989 period was higher than the average for all occupations. The apparent tightness in this market over the 1984-to-1988 period is reflected in the low incidence of unemployment.

Over the 1989-to-1995 period employment is expected to grow at a rate close to the average, as growth is largely determined by demographics. Employment of correctional officers is only mildly sensitive to fluctuations in the business climate. The incidence of part-time work is above the average for all occupations. Increased awareness of the value of security personnel in reducing vandalism and theft has led to increased employment opportunities in these occupations.

In general, conditions over the 1989-to-1995 period will be such that employment in this occupation will only grow at the average rate after growing quite quickly over the 1981-to-1989 period. The number of new jobs created over this period should approximate 55,000, with slightly more than four-fifths arising from employees leaving the occupation for various reasons.

1985 Annual Earnings	**$**	
Lowest 10% of Workers	**10,198**	**or less**
Average Worker	**21,679**	
Highest 10% of Workers	**34,898**	**or more**

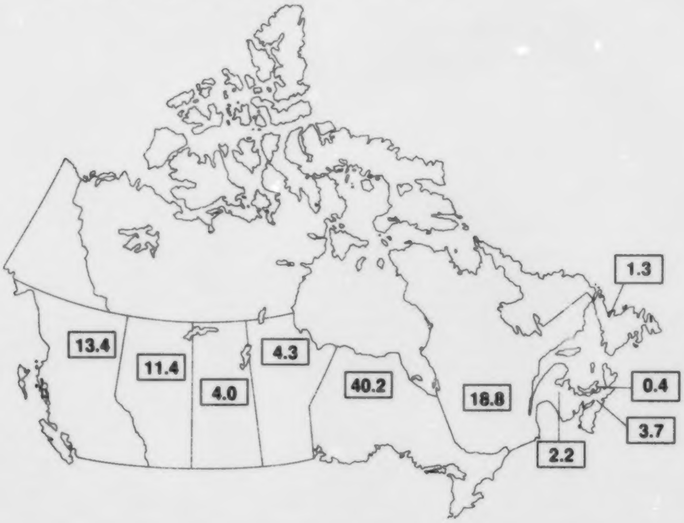
Source: 1986 Census

Supervisors: Food and Beverage Preparation and Food Service Occupations

6120

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	58,064	1.0	1.7	61,552
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	55	45	19	71	10	85	15
	1986	50	50	18	70	12	80	20
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (93)	Trade (3)	Public Administration (2)
- Accommodation & Food (77) - Education (6) - Hospital (4)	- Retail (3)	- Federal (1)

Supervisors: Food and Beverage Preparation and Food Service Occupations

6120

Job Environment

Supervisors in this classification include cafeteria supervisors, head chefs, head waiters/waitresses and maîtres d'hôtel. These managers supervise staff, co-ordinate service and oversee housekeeping, budgets and sales. Experienced managers rise rapidly to senior positions. Work in these occupations can be fast-paced, challenging and complex.

Educational Background and Skills

Many people in these occupations have no formal education in their field, having attained their positions instead on the basis of on-the-job experience. While this remains a possible route to higher-level jobs, formal preparation will become increasingly important as Canada's food service industry grows in complexity. Programs in food preparation and food service administration are available from some secondary schools, community colleges (programs lasting one to four years) and universities. For people already in food service who aspire to a career in management, continuing education is available through evening or correspondence courses.

Nature of Supply

Important sources of supply to this field are the household sector, the education system and workers from related occupations (primarily food service jobs). The total number of entrants from post-secondary programs can be divided almost evenly into graduates of trade/vocational institutes, community colleges and universities.

The average age of this labour force was 37 in 1986, a slight decline from that of 10 years earlier; the proportion under 25 remained fairly constant between 1981 and 1986. The percentage of women increased between these years and, at 50%, remains above the average for the labour force as a whole. Most of the employment is in Ontario (40%), Quebec (19%), British Columbia (13%) and Alberta (11%).

Market Conditions and Job Prospects

The employment outlook for these occupations calls for a continuation of the above-average growth of the mid-1980s, based on growth prospects for the accommodation and food services sector. Approximately 61,000 additional food-service managers will be required to fill new jobs and to replace personnel in existing jobs over the next six years. Hirings resulting from replacement of workers lost through death, retirement and a return to the household or the education system are expected to be above average and will account for the majority of openings.

The employment outlook for this occupation is quite favourable, although employment of food service managers is somewhat susceptible to fluctuations in the business climate. There is little seasonal variation in this area. As the need for convenience in the food service industry increases, workers may require greater skills and more advanced courses in food service administration and technology to meet employer demands.

1985 Annual Earnings	$	
Lowest 10% of Workers	7,928	or less
Average Worker	19,603	
Highest 10% of Workers	32,967	or more

Source: 1986 Census

For further information, contact:

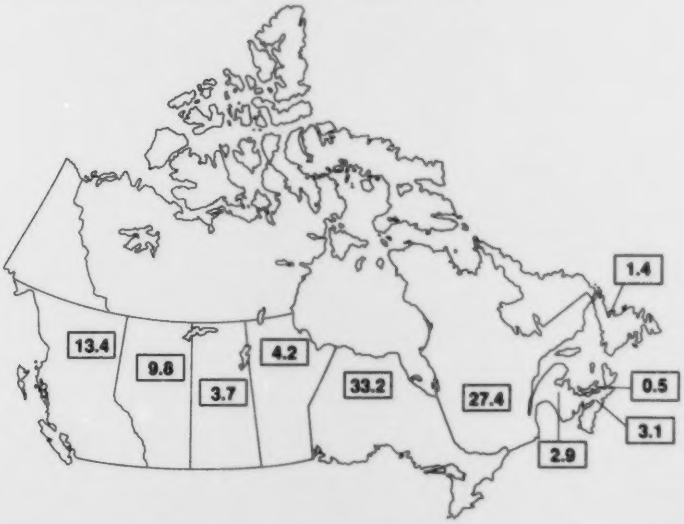
Canadian Restaurant and Food Services
Association
Suite 1201, 80 Bloor Street West
Toronto, Ontario M5S 2V1

Chefs and Cooks

6121

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	181,350	3.0	1.9	194,090
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	49	51	41	49	10	67	33
	1986	52	48	39	52	9	64	36
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (92)
- Accommodation & Food (75)
- Health and Welfare - Non-Hospital (6)
- Hospital (5)

Trade (3)
- Retail (3)

Public Administration (2)
- Federal (1)

Chefs and Cooks

6121

Job Environment

This occupational group includes all types of cooks — institutional, short-order and specialty cooks, as well as chefs. Chefs plan and direct food preparation and cooking activities, and may prepare and cook food on a regular basis. They may be responsible for planning menus, ensuring quality, estimating material and labour costs, administering budgets, hiring staff and supervising cooks.

Cooks prepare and cook food under the direction of chefs, dieticians or nutritionists. Cooks may work independently, planning and preparing menus, or they may manage a kitchen and supervise staff.

Chefs and cooks are employed in restaurants, hotels, hospitals, cafeterias and similar establishments.

Educational Background and Skills

While many cooks and chefs begin their careers as dishwashers or waiters/waitresses, progressing to the level of cook with experience, career prospects are much better for individuals with relevant vocational preparation. In general, chefs have more training, skills and experience than cooks. Completion of high school is usually required, along with further training and related work experience. Cook's apprenticeship programs combine up to three years of theoretical instruction at a community college or vocational institute with periods of in-service training. Upon successful completion of this program, students are qualified to write an inter-provincial exam to become a certified cook. Other forms of training include adult retraining (sponsored by the federal government) and chef pre-employment and culinary management programs, which are available at community colleges and vocational institutes. Certification programs developed by the Canadian Federation of Chefs de Cuisine are now in place.

Nature of Supply

Most people enter this field from the formal education system, while others do so upon returning to the labour market. Immigration contributes a small number.

The proportion of women in this category has fluctuated around 50% during the past two decades. The average age (33) of cooks and chefs remained constant between 1981 and 1986. Most people enter this occupation before the age of 25, although entry may continue into one's 50s. Retirement begins at approximately age 60, implying a normal career length of about 40 years.

Market Conditions and Job Prospects

Employment growth in this group has been extremely rapid during the past two decades, and projected growth is expected to be above the average for all occupations. Labour market conditions for chefs and cooks in 1986 improved over the previous few years, and rank among the most favourable in the economy. A trend toward eating out, as well as rising income levels and two-income families are expected to increase the demand for food services and, therefore, chefs and cooks. Approximately 194,000 job openings will become available over the next six years.

Since employment in this occupational group is concentrated in the accommodation and food industries, chefs and cooks are vulnerable to fluctuations in the overall economic climate. There is a notable seasonal variation in employment as well as an above-average incidence of part-time work. Changing technology in the work place, such as microwave cooking, adds to a chef's knowledge requirements but will not likely affect overall employment in the occupation.

1985 Annual Earnings	$	
Lowest 10% of Workers	6,692	or less
Average Worker	15,083	
Highest 10% of Workers	24,989	or more

Source: 1986 Census

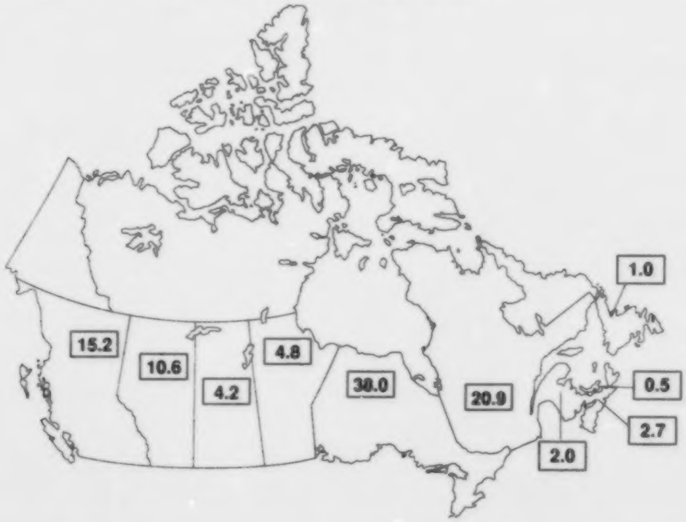
For further information, contact:

Canadian Restaurant and Food Services
Association
Suite 1201, 80 Bloor Street West
Toronto, Ontario M5S 2V1

Food and Beverage Serving Occupations 6125

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	235,795	0.9	0.7	220,558
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	18	82	58	38	4	48	52
	1986	20	80	58	38	4	45	55
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (95)	**Trade** (3)
- Accommodation & Food (88)	- Retail (3)
- Recreation (3)	
- Miscellaneous (1)	

Food and Beverage Serving Occupations

6125

Job Environment

This occupational group includes a variety of positions in food service, from buspersons to formal dining room waiter or waitress. Waiters and waitresses take patron's orders, serve food and beverages, and provide a high level of service. They may move into one of a range of related occupations: host, wine steward, food and beverage manager, banquet supervisor or even restaurant, resort or hotel manager. Buspersons assist waiters and waitresses and perform duties related to cleaning up and setting of tables. Typically, people in this occupation work indoors in shifts. Waiters and waitresses are continuously on their feet and the pace of work may become hectic during mealtime peaks. Patience is required, as these people must deal quickly but pleasantly with all types of customers.

Educational Background and Skills

There is no educational requirement for employment in these occupations. However, depending on the range of the menu, the nature of the clientele, the type of establishment and the complexity of service, individual employers may require a specific level of preparatory training and experience. On-the-job training in this field may mean a position as a counter person, busperson or kitchen helper, with career advancement coming with experience and formal training. Formal vocational preparation may take the form of a three-month to two-year program of study offered by community colleges or technical institutes. Further information regarding local training needs and availability can be obtained from colleges and industry trade associations (for example, the Canadian Restaurant and Foodservices Association). The most appropriate means of ensuring success in this occupation is through a combination of formal training and experience.

Nature of Supply

Most entrants to this occupation come from the formal education system. Many others take these jobs upon re-entering the labour market after a period of absence. Immigration, the military and movements from other occupations only marginally supplement the number of food and beverage servers in Canada. Of those entering from the education system, a very small proportion have studied programs directly linked to these occupations.

In 1986, 58% of food and beverage servers were aged 24 or under, while only 4% were over 54. The average age was 27, and 80% of the workforce were women. Entry to this field can occur at any age, although current statistics suggest that most people are initially employed between the ages of 15 and 24, with labour market withdrawals beginning in small numbers almost immediately. There is no typical career length, although the low average age suggests that people probably do not stay in these jobs for a long time. The geographical distribution of food and beverage servers approximates the distribution of the general population.

Market Conditions and Job Prospects

Employment growth in this group was among the highest for any occupation in recent years, but it has begun to slow down. Growth is projected to be below the average for all occupations, and approximately 220,000 waiters and waitresses will be required over the next six years, mostly to replace personnel in existing jobs.

Career opportunities in related areas will continue to arise since the personal and hospitality services sector remains one of the faster-growing service industries.

Employment in this occupational group is susceptible to fluctuations in the overall business climate. There is some seasonal variation in employment and much part-time work. Turnover of personnel is high compared with other occupations. As the trend toward eating out continues and the number and variety of restaurants grow, the specific skills required for certain types of waiters and waitresses will also change.

1985 Annual Earnings	$	
Lowest 10% of Workers	4,844	or less
Average Worker	11,077	
Highest 10% of Workers	19,941	or more

Source: 1986 Census

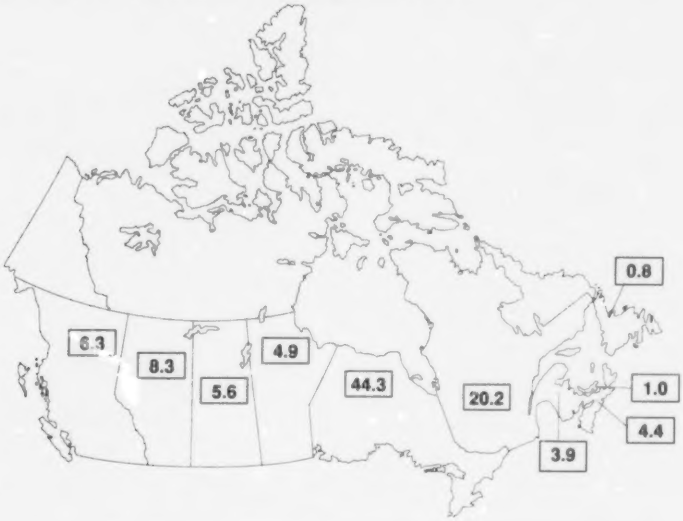
For further information, contact:

Canadian Restaurant and Food Services
Association
Suite 1201, 80 Bloor Street West
Toronto, Ontario M5S 2V1

Funeral Directors, Embalmers and Related Occupations 6141

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,904	-0.4	1.5	1,701
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	91	9	16	61	23	86	14
	1986	89	11	13	66	21	83	17
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (100)
- Personal (100)

Funeral Directors, Embalmers and Related Occupations

6141

Job Environment

This occupational category includes funeral directors, embalmers, cremators, morticians and undertakers. Besides their work in embalming, they provide legal and emotional support to the bereaved. They plan and co-ordinate funerals, burials and cremations, which involves making arrangements with cemeteries, receiving and arranging flowers and co-ordinating religious and burial or cremation services.

Educational Background and Skills

Although the functions of a funeral director are generally distinct from those of an embalmer, the educational preparation for both occupations is virtually the same. While the requirements may vary from province to province, secondary school graduation is necessary for entry into most programs of study. Backgrounds in chemistry, biology and sociology, as well as courses in bookkeeping or small business management, are definite assets. Community college programs are available only in Ontario and Quebec, and combine formal classroom instruction and on-the-job training over a two- to three-year period. In other provinces, training may be provided by the provincial board responsible for professional licensing. Throughout Canada, a licence is a mandatory condition of employment and is awarded to those who pass a provincial association examination. Licensees then begin their career as embalmers. With experience, and as employment opportunities arise, they may attain a position as a funeral director. Persons working in this area must be mature and emotionally stable.

Nature of Supply

Because of the educational requirements, most persons enter this field from the education system. In some cases, people move into these occupations after leaving others.

The female proportion of this work force remains small, but the level has been increasing in recent years. In 1986, the average age of persons employed in this field was 41 years of age, a slight increase over the level of 1981. The proportion of workers less than 25 years old decreased from 16% to 13% between 1981 and 1986. Most people enter this field between the ages of 20 and 29 years and follow careers that last 30 to 35 years.

Market Conditions and Job Prospects

Employment is forecast to grow at a rate equal to that for all occupations between 1989 and 1995. Approximately 1,700 additional funeral directors and embalmers will be required to fill new jobs and to replace personnel in existing ones over the next six years.

Labour market conditions for funeral directors and embalmers currently rank among the best for any group, as unemployment is very low. Growth within this occupation is controlled primarily by demographic factors and is not vulnerable to fluctuations in the overall business climate. Many funeral directors are self-employed and, in some settings, supervise embalmers. Some part-time work is available.

1985 Annual Earnings	$	
Lowest 10% of Workers	13,154	or less
Average Worker	28,376	
Highest 10% of Workers	42,843	or more

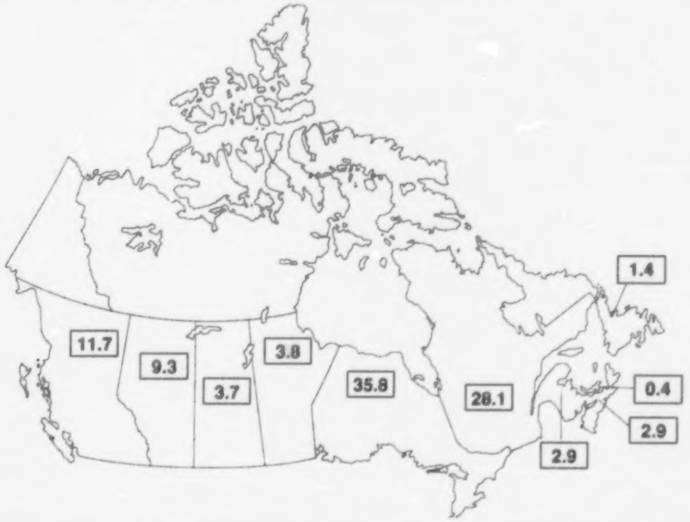
Source: 1986 Census

Barbers, Hairdressers and Related Occupations

6143

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	113,295	1.4	1.6	117,097
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	25	75	31	61	8	74	26
	1986	20	80	33	61	6	73	27
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (96) - Personal (94)	**Trade** (3) - Retail (3)

Barbers, Hairdressers and Related Occupations

6143

Job Environment

This occupational group includes beauticians, cosmetologists, haircutters, hairstylists and other haircare specialists. Hairdressers and barbers provide many different services such as cutting, styling, colouring, cleaning, curling and perming. This work is largely manual and is done constantly on one's feet. Typically, barbers and hairdressers work in shops, homes or hospitals.

Educational Background and Skills

Educational requirements for employment in this field vary according to the province and the specific vocation. In general, prospective barbers and hairdressers must have Grade 10 (lower in some provinces, although some employers may require higher levels of secondary study), plus six months to three years of training. In some provinces, training may combine formal instruction at a secondary school, community college, private hairdressing school or trade/vocational institute and in-practice learning. Apprenticeship or on-the-job training are also possible. Most provinces require candidates to write a certifying exam upon completion of training. For barbers, the training time required prior to certification is less than for hairdressers. Individuals considering eventual ownership and operation of their own haircutting establishment will find a knowledge of business management and bookkeeping techniques useful.

Nature of Supply

Many people enter these occupations upon rejoining the workforce. The number entering these occupations directly from the education system is also significant, largely represented by graduates from barber/hairdresser programs at trade/vocational institutes.

Most members in this group are women (80% in 1986). The average age is 33, slightly below the average for the labour force as a whole, and most enter the field before age 25. The typical career ranges from four to six years; people remaining for longer periods often open shops of their own.

Market Conditions and Job Prospects

Employment growth in this group was above average during the early 1980s and is expected to equal the average rate anticipated for all occupations until 1995. Job openings resulting from losses due to death and retirement are expected to be below the average, although they will comprise a large proportion of the 117,000 job openings over the next six years.

Labour market conditions for hairdressers and barbers rank favourably. Employment opportunities for members of this group are concentrated in large and medium-size urban areas, although most smaller communities support at least one barber or hairdresser. Cities offer the best opportunities for growth and specialization.

Employment is concentrated in the personal services industry, and to some extent in the retail trade. Fluctuations in the overall business climate have little effect on this group, and employment does not vary seasonally. Part-time work is slightly more common than in other occupations. Educational standards are becoming more important in this occupation and, as the range of services expands, are being written into the regulations governing employment in this field.

1985 Annual Earnings	$	
Lowest 10% of Workers	6,200	or less
Average Worker	13,799	
Highest 10% of Workers	23,970	or more

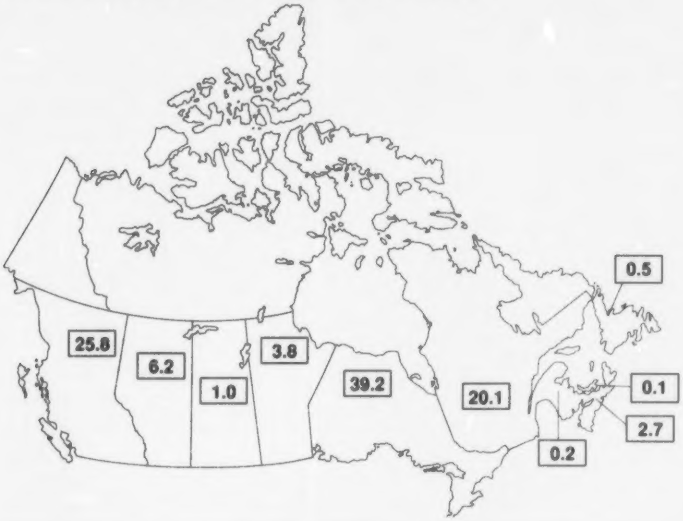
Source: 1986 Census

Flight Attendants, Travel and Related Attendants, Except Food and Beverage

6145

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	9,010	2.7	1.7	9,494
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	26	74	23	75	2	90	10
	1986	27	73	21	76	3	83	17
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (79)
- Air Transport (76)
- Rail Transport (2)

Services (17)
- Accommodation & Food (6)
- Miscellaneous (5)
- Recreation (2)

Public Administration (2)

Flight Attendants, Travel and Related Attendants, Except Food and Beverage

6145

Job Environment

Work in this group is seldom monotonous and includes tending to passengers (some of whom may have special requirements), reviewing safety procedures and providing food and beverage service. Working conditions are good, but involve a cramped work space and irregular hours averaging more than 40 hours a week. Other types of hostesses and stewards in the tourism industry attend to the comfort, safety and recreational activities of travellers and hotel guests.

Educational Background and Skills

Although Grade 12 is the minimum requirement for flight attendants, candidates with post-secondary training or several years of experience are given preference. While several community colleges offer flight attendant courses, training usually takes place on the job. The larger airlines provide training courses which last five to eight weeks and which cover such areas as safety procedures, passenger service, first aid and grooming. On completion of training, flight attendants may be put on reserve status, meaning they must be ready to fly anywhere at any time.

After a minimum of one year of service, the flight attendant can move up to a purser position by successfully completing a one-month course. A career-minded attendant may eventually reach the position of flight service director.

People in this occupational group require patience, a friendly personality, an ability to deal with people, proficiency in more than one language (both official languages and another may be required), excellent health and a neat appearance.

Nature of Supply

The major sources of supply to this occupation are the household sector and secondary school graduates. Most people in these occupations are women, with the majority distributed among Ontario (39%), British Columbia (26%) and Quebec (20%). The proportion of flight attendants under 25 has been dropping since 1971, reflecting the fact that the new supply is coming more from the post-secondary educational system and the household than in the past. The majority of individuals enter the occupation between the ages of 25 and 29 and leave about 10 years later. The average age for people in this group is 33.

Market Conditions and Job Prospects

Employment in this group grew moderately during the 1970s, but suffered some losses during the early 1980s. Up to 1995, it is expected to grow at a rate slightly above the average of all other occupations. Over the projection period, job openings will total almost 9,500, nearly all of which will be replacement positions.

Labour market conditions for attendants and stewards have remained average since 1981. Technological changes affecting this occupation are few and have not affected employment levels. Seasonal variation causes employment to peak in the summer months, and fluctuations in general economic conditions also affect employment.

1985 Annual Earnings	$	
Lowest 10% of Workers	14,397	or less
Average Worker	25,609	
Highest 10% of Workers	35,157	or more

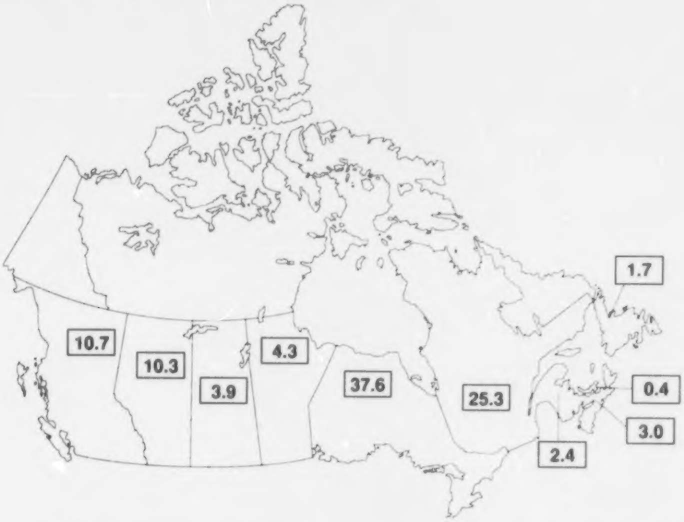
Source: 1986 Census

Janitors, Charworkers and Cleaners

6191

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	227,578	0.7	0.4	195,409
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	59	41	25	52	23	67	33
	1986	58	42	21	58	21	64	36
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (70)
- Miscellaneous (21)
- Education (21)
- Hospital (9)

Manufacturing (8)
- Food & Beverages (2)

Finance & Insurance & Real Estate (6)

Janitors, Charworkers and Cleaners

6191

Job Environment

This occupational group includes janitors, cleaners, building operators, superintendents and floor cleaners. A janitor maintains an assigned building, handling emergencies and undertaking maintenance, groundskeeping, housekeeping, inventory control and perhaps some administrative duties, such as rent collection and leasing. Supervisory aspects of the job may include the hiring and training of contract staff for specific duties. Typically, people in this occupation are on call at all hours of the day. They constantly deal with people and must be aware of fundamental rules of health, safety and sanitation.

Educational Background and Skills

Specific educational requirements do not exist in this field, although one or two years of high school is preferred. Most workers receive their training on the job, under the guidance of an experienced professional. The training period lasts at least one month. Training is also available from vocational schools. Because the tasks of janitors are quite varied, a knowledge of electrical, plumbing, carpentry and other technical skills is a strong asset.

Nature of Supply

Many people take these jobs upon first entering or re-entering the labour market, sometimes directly from school (mainly secondary schools). Other sources of supply are minor. Most people entering this field from the formal education system are graduates of trade/vocational institutes.

In 1986, the average age in these occupations was 39 years, marginally lower than the average of five years earlier. The proportion aged 55 years and older was 21%, significantly above the equivalent figure for the labour force as a whole and indicative of a large number of retirements in the future. Most people enter these occupations prior to age 24, and 58% are male.

Market Conditions and Job Prospects

Employment growth in this group was below average from 1984 to 1989, a trend expected to continue until 1995. Approximately 195,000 job openings will be available over the projection period, 190,000 of which will be replacement positions. Labour market conditions for janitors have improved over the past few years.

Employment in this occupational group is concentrated in the services and manufacturing industries. The employment of janitors may fluctuate according to the business climate. Work is generally steady throughout the year, with more part-time employment available than in other occupations. While changing technology in the workplace has lightened janitors' tasks, it has not had a significant effect on employment levels.

1985 Annual Earnings	$	
Lowest 10% of Workers	7,777	or less
Average Worker	17,902	
Highest 10% of Workers	27,005	or more

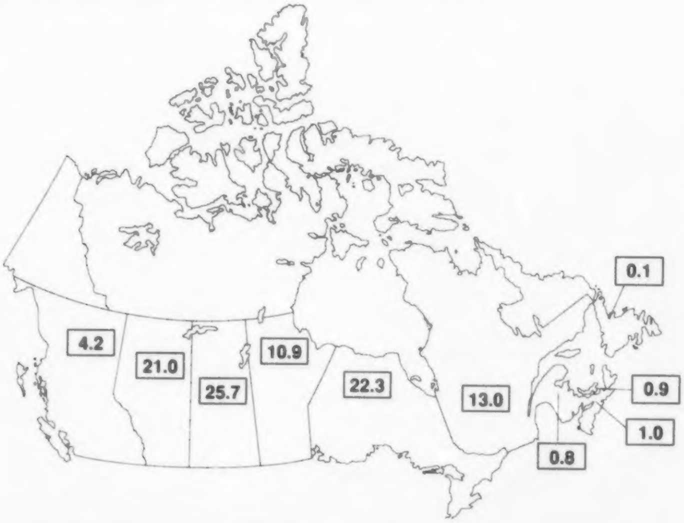
Source: 1986 Census

Farmers

7111

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	185,798	-3.1	-3.6	-20,968
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	91	9	5	60	35	88	12
	1986	91	9	3	58	39	87	13
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Agriculture (100)

Farmers

7111

Job Environment

Many farmers specialize in particular kinds of livestock or crops. Crop farmers include those who harvest grains, fruits, tobacco or vegetables, while livestock farmers specialize in beef cattle, dairy cattle, hogs, sheep, poultry or bees. However, many farmers maintain an even balance of two or more types of operation.

Animal farming is a strenuous, year-round job. Although mechanization has eliminated some manual labour, caring for the animals, cleaning their stalls and pens, monitoring their health and maintaining the farm's machinery demand the farmer's constant attention. As breeding and animal raising become more scientific, the successful farmer must also keep up with the latest advances in farm technology in order to maintain a profitable operation.

The workload for crop farmers is considerably more seasonal. They must work long and tedious days during the sowing and harvesting seasons, but they enjoy a lighter burden at other times of the year.

Educational Background and Skills

There are no specific educational requirements for employment in this occupation. Farm experience is a definite advantage, and farmers must have a good understanding of agricultural technology, animal science and business management techniques. As farming relies more and more upon the use of machines, farmers must correspondingly increase their knowledge of the operation, service and maintenance of farm machinery. College or university education in any number of areas in agriculture would be of great benefit.

Nature of Supply

The majority of people enter this occupation in their 20s and tend to remain farmers as long as finances permit. The average age of farmers in 1986 was 49 years, indicating that many people continue farming well past normal retirement age.

Most farmers are located in Ontario, Saskatchewan and Alberta. While this occupation is predominately male, farming is often a family business which requires contributions from all family members.

Market Conditions and Job Prospects

The trend toward larger but fewer farms resulted in negative overall employment growth for farmers during the 1980s. This is expected to continue over the forecast period. For the most part, farmers are self-employed. There is a high capital cost to purchasing a farm and the loss of a farm entails a severe economic blow to its owner. Heavy reliance on debt financing leaves the farm sector very sensitive to interest rate shifts.

In the 1989-to-1995 period, over 36,000 positions in this field are expected to disappear. This decline in employment will only partially be offset by 16,000 people leaving the profession for such reasons as death or retirement, and consequently employment prospects in this occupation are poor.

1985 Annual Earnings	**$**
Lowest 10% of Workers	**N/A**
Average Worker	**14,791**
Highest 10% of Workers	**35,557 or more**

Source: 1986 Census

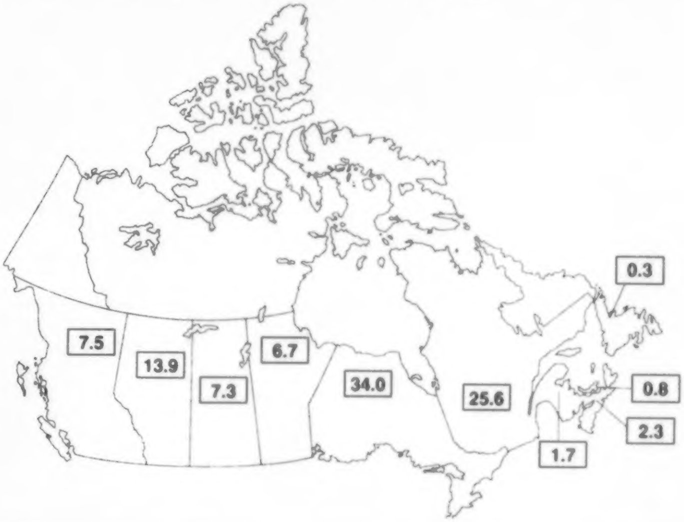
For further information, contact:

Agriculture Canada
Sir John Carling Building
Room 361, 930 Carling Avenue
Ottawa, Ontario K1A 0C5
(613) 995-5880

Livestock Workers 7183

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	49,999	1.2	-1.1	24,975
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	61	39	46	45	9	66	34
	1986	56	44	38	50	12	65	35
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Agriculture (100)

Livestock Workers

7183

Job Environment

This occupation group works with various types of livestock, including horses, swine, sheep, fur-bearing animals, dairy and beef cattle and poultry. Most of the work involves feeding, watering and grooming the animals, keeping their living area clean, inspecting them for diseases and treating minor ailments. These workers must also maintain machinery such as milking machines and feeding conveyors, kill and skin fur-bearing animals, kill and dress poultry, and tend eggs and newly hatched chicks. The work may be done in climate-controlled buildings, in the case of poultry farms, hatcheries and some fur-bearing animal farms; outdoors or in insulated barns, in the case of horse and beef cattle; or in a combination of both for dairy cattle. Much of the work is manual, even though the most strenuous work is now usually mechanized.

Educational Background and Skills

There are no specific educational requirements for employment in this occupational group, although many agricultural colleges offer courses in specific types of livestock, and some universities and community colleges offer courses covering broad areas in agriculture. Since people in these positions work either for an owner or under a supervisor, much is learned from on-the-job training. A natural aptitude for working with animals is a definite asset, and in some cases the ability to maintain and repair machinery is required. Special skills are required in such areas as sheep shearing, skinning of fur-bearing animals and the breaking and training of horses.

Nature of Supply

The vast majority of entrants to this field come directly out of secondary school, and a large number leave before they reach 30 years of age, suggesting that many see this as a stepping-stone to other occupations. The average age increased from 31 to 33 between 1981 and 1986, which probably reflects the general aging of the labour force and poor growth in this occupation. The number of people under 25 in this group declined over the same period even though their representation is still above the all-occupation average.

Employment is concentrated in Ontario, Quebec and Alberta.

Market Conditions and Job Prospects

Employment in this group is highly sensitive to economic conditions and total farm revenues. As a result, people entering this occupation can expect to face some periods of unemployment. While employment growth was strong in the early 1980s, it was almost non-existent in the latter part of the decade and is expected to decline over the 1989-to-1995 period. It is expected that there will be about 25,000 job openings over the 1989-to-1995 period, all of which will be to replace workers who have left this occupation group.

The work is highly seasonal, peaking in the summer and autumn, and much of the work is part-time. People may use this occupation to prepare for becoming a supervisor in the livestock trade or for running their own livestock business.

1985 Annual Earnings	$	
Lowest 10% of Workers	3,031	or less
Average Worker	12,597	
Highest 10% of Workers	22,458	or more

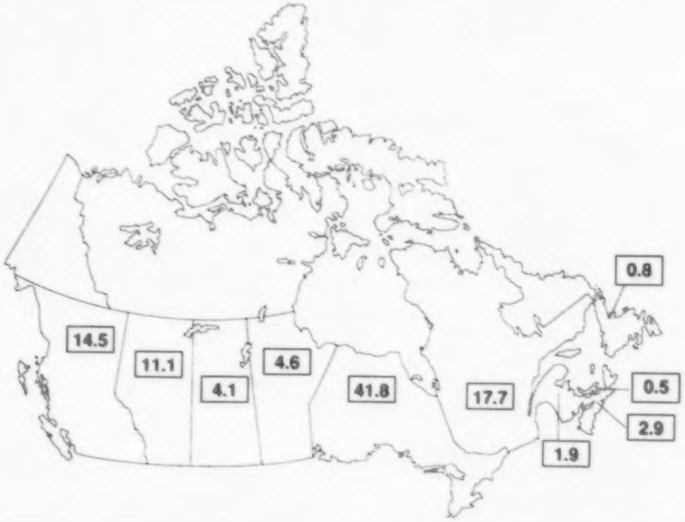
Source: 1986 Census

Nursery and Related Workers

7195

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	88,901	4.7	3.6	78,475
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	84	16	51	37	12	74	26
	1986	85	15	45	44	11	71	29
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (32)

Services (26)
- Recreation (9)
- Personal (6)
- Education (3)

Public Administration (20)
- Municipal (15)
- Provincial (3)
- Federal (2)

Nursery and Related Workers

7195

Job Environment

This group includes nursery workers, groundskeepers, landscape gardeners, flower growers and grounds maintenance workers. Nursery workers plant, cultivate and harvest trees, shrubs, and ornamental and flowering plants in greenhouses, nurseries and grounds. Their duties involve preparing soil, transplanting plants and grafting, spray watering and pruning plants, trees and shrubs. When plants are ready for shipping, they wrap the roots and earth in plastic sheeting and burlap to ensure safe transportation. Most of the work is manual, requiring considerable bending, stooping, kneeling and lifting, but much of the heaviest work is now done by machine. Nursery work involves handling water, chemical fertilizers, soil and plant stock, often in climate-controlled conditions that may be uncomfortable. During the warm months of the year, nursery work is done outdoors as well as indoors, and sometimes nursery workers must deal with the public, providing information and advice to customers and assisting in the selection of products.

Educational Background and Skills

While no specific education is required to become a nursery worker, completion of secondary school is advisable, and completion of a community college program in landscaping and horticultural technology or an apprenticeship program is preferred. Specialists such as tree surgeons and plant doctors usually need post-secondary training in horticulture, forestry or arboriculture.

Nature of Supply

The major source of supply to this occupation is the secondary school system, although the post-secondary education system is becoming more important.

The majority of nursery workers are in Ontario and Quebec, and the occupation remains predominantly male. A large number of nursery workers are under 25, accounting for the average age of 31, which has remained stable over the 1981-to-1986 period. Entry typically occurs between the ages of 20 and 24, with relatively few people continuing beyond age 65.

Market Conditions and Job Prospects

Based on expected growth in construction, public administration and agriculture, and on greater demand for indoor greenery and landscaping, the employment outlook for nursery and related workers calls for above-average growth over the projection period. Strong growth in construction since the early 1980s has helped keep employment growing faster than average for people in positions related to landscaping.

A great many nursery and landscaping jobs are part-time (23% in 1986). Employment in this category is also highly seasonal, with employment peaking during the warm months. Employment has been little affected by changing technology.

1985 Annual Earnings	$	
Lowest 10% of Workers	8,658	or less
Average Worker	20,098	
Highest 10% of Workers	30,422	or more

Source: 1986 Census

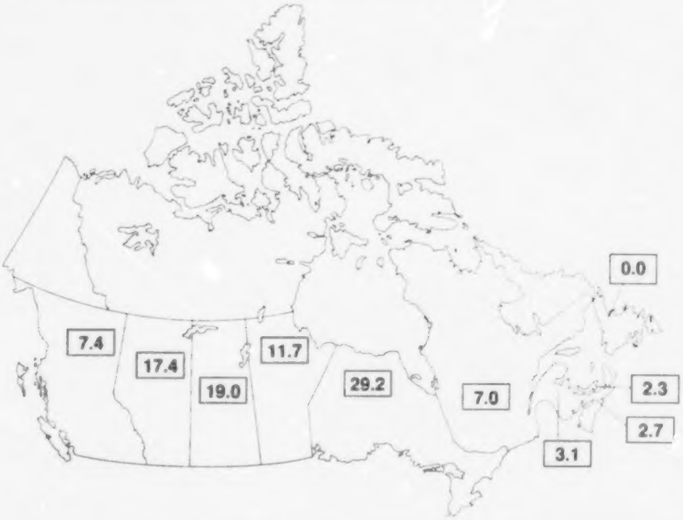
For further information, contact:

Agriculture Canada
Sir John Carling Building
Room 361, 930 Carling Avenue
Ottawa, Ontario K1A 0C5
(613) 995-5880

Farm Machine Operators 7197

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	9,828	-1.0	-1.1	4,932
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	87	13	48	36	16	65	35
	1986	85	15	39	43	18	64	36
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Agriculture (84)

Trade (4)
- Wholesale (3)

Manufacturing (3)
- Food & Beverages (2)

Farm Machine Operators

7197

Job Environment

People in this occupational group operate a wide variety of farm machinery, depending upon the type of farm they work. This machinery includes tractors, combines, crop-spraying machines, potato diggers, threshing machines and cultivators. At busy times of the year, the operator may have to work long hours to take advantage of daylight. While the work is usually not strenuous, trailers and other implements may have to be hitched by hand.

For spraying and fertilizing equipment, operators may have to mix the various herbicides, pesticides, hormones and fertilizers. Routine maintenance and minor repair work is also performed. Most work takes place outdoors.

Educational Background and Skills

Although there is no specific educational requirement, a familiarity with machinery and some mechanical ability are desirable traits. The ability to follow written instructions, as in the case of mixing chemicals which may be toxic if not handled properly, is necessary. Secondary school education is advantageous, and some post-secondary education in agriculture or horticulture is desirable.

Nature of Supply

Most people enter this occupation in their late teens which accounts for the larger number of people in the 15-to-24 age group than the average for all occupations. However, a large number also leave in their early 20s, indicating that this occupation is at entrance level for many people. Beyond this large turn-over, there is a fairly even distribution through all age groups, and employment may continue past normal retirement years. The average age has increased from 32 in 1981 to 35 in 1986, reflecting the aging of the labour force and the low employment growth for this group.

In 1986, 85% of workers were male, down from 87% in 1981. This occupational group is not yet a major source of employment for women. Most people work in Ontario, followed by Saskatchewan and Alberta.

Market Conditions and Job Prospects

Increasing productivity and little change in the number of acres under cultivation suggests that there will be no growth in employment in this occupation group. As a direct effect of increasing productivity, employment may not regain the levels of the early 1980s. All 5,000 positions expected to open between 1989 and 1995 will be to replace workers who have left this occupation. High interest rates have a strong effect on farm income due to the debt-load carried, and employment is, therefore, more sensitive to interest-rate fluctuation than to other economic changes. Work is highly seasonal with the peaks in the summer and autumn months. This aspect of the occupation may partially account for the fact that a greater-than-average number of people see their jobs as part-time.

1985 Annual Earnings	$	
Lowest 10% of Workers	3,999	or less
Average Worker	17,204	
Highest 10% of Workers	31,551	or more

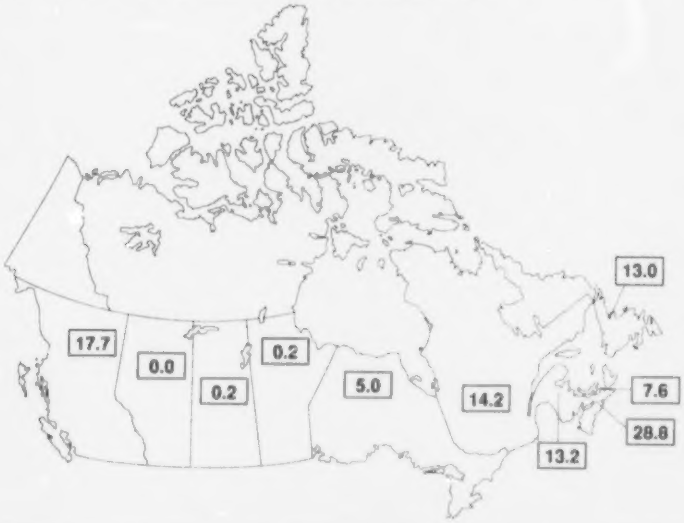
Source: 1986 Census

Captains and Other Officers, Fishing Vessels

7311

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	3,180	2.0	-0.8	2,053
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	8	80	12	85	15
	1986	99	1	5	81	14	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Fishing (86)

Manufacturing (12)
- Food & Beverages (12)

Trade (1)

Captains and Other Officers, Fishing Vessels

7311

Job Environment

Captains, skippers and mates command fishing vessels and crews and oversee fish processing on board their ships. They are also responsible for maintaining vessels and their equipment. The work is outdoors, exposing officers to various weather conditions, requires physical stamina and frequently involves long and irregular hours.

Educational Background and Skills

Individuals in this occupation should have Grade 10 education and be at least 19 years old. For larger vessels, captains and skippers must have a Fishing Master Certificate, which requires between five and eight years of on-the-job experience. A program in fisheries techniques and technology from a community college or school of fisheries is an asset, while the ability to work with a compass, navigation charts and tables, and electronic navigational aids is essential.

Nature of Supply

Labour force re-entrants and entrants from other occupations are the major sources of supply in this field, while immigration and the secondary and post-secondary education systems also provide candidates.

This is an overwhelmingly male occupation and is concentrated in Nova Scotia, British Columbia, Newfoundland and New Brunswick. The average age (41) and the age structure of this occupation have stayed fairly stable since 1981.

Market Conditions and Job Prospects

The employment outlook for this group is poor, with negative growth expected. Approximately 2,000 people will be needed over the projection period to replace personnel who die, retire or return to the household or the educational system.

This group is highly vulnerable to changes in economic conditions as well as to non-economic events. The price of fish, regulation of fish supplies, territorial fishing rights, quotas and the value of the Canadian dollar greatly affect employment opportunities. Since some important fishing grounds lie outside of Canadian waters, the Canadian government has limited power in regulating fish stocks; foreign over-fishing could deplete stocks and thereby restrict employment opportunities for Canadians. The growing use of factory-freezer trawlers in offshore activity, while not yet fully developed may also limit employment in this area. Employment in this occupational group is seasonal, with most fishing occurring in the spring and summer.

1985 Annual Earnings	$	
Lowest 10% of Workers	15,234	or less
Average Worker	36,125	
Highest 10% of Workers	62,263	or more

Source: 1986 Census

For further information, contact:

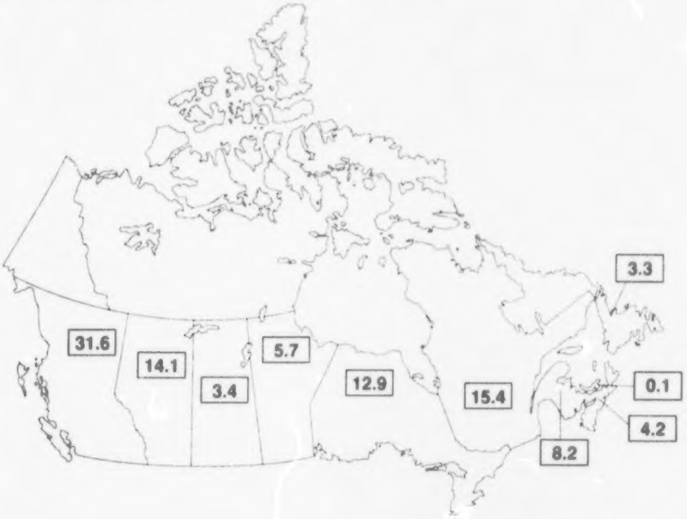
Fisheries Council of Canada
Suite 505, 77 Metcalfe Street
Ottawa, Ontario K1P 5L6
(613) 238-7751

Forestry Conservation Occupations

7511

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,636	0.7	0.5	4,399
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	91	9	40	50	10	87	13
	1986	90	10	28	64	8	85	15
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Forestry (71)

Public Administration (23)
- Provincial (20)
- Municipal (2)
- Federal (1)

Manufacturing (2)
- Pulp & Paper (1)

Forestry Conservation Occupations

7511

Job Environment

People in this occupation group work to protect forests from fire, disease and other hazards. The work can range from fighting forest fires and manning lookout towers to serving as park ranger or aerial observer. Most of the work is performed outside and sometimes involves risk. The work can require travel through the forest by foot, vehicle or horseback to report on hazardous conditions, rainfall, soil content and to look for lost people. Forest fire officers train and lead firefighting crews, arrange for their provisions and co-ordinate firefighting operations.

Educational Background and Skills

The educational training required for these occupations varies depending upon the exact nature of the position, but all workers must be in excellent physical condition and be able to spend long days working in the forest, often carrying a pack or other equipment. A knowledge of meteorology is required in some positions, as is a knowledge of the use of toxic chemicals (e.g., herbicides) in others. All occupations require the use of chainsaws or other hand tools, as well as the ability to apply emergency first aid. Generally, candidates should possess a high school diploma, and their prospects of employment are enhanced with community college or university education in biology or a related discipline.

Nature of Supply

Most people enter this occupation group directly out of secondary school or out of a post-secondary institution. The proportion of young people (15 to 24 years of age) in this group is above average, and those above 55 years represent a smaller-than-average share. This is largely the result of the physical nature of the work and the low educational requirements, although the age profile has been moving up, since more firms are requiring some post-secondary education and employment growth has been slow.

The vast majority of the workers are male (90%). Most jobs are located in British Columbia, Quebec, Alberta and Ontario.

Market Conditions and Job Prospects

Over 70% of jobs in this group are found in the forestry sector, which is one of the most volatile in Canada. As a result, employment is extremely volatile and people in this group can expect periods of unemployment when business conditions are poor. Furthermore, employment growth during the 1980s was below that of all occupations, a situation that is expected to continue over the 1989-to-1995 period. About 4,400 jobs will open up, of which about 4,000 will be replacement positions.

Work in this occupation is seasonal, and consequently people in these positions are likely to experience both long and short periods of unemployment.

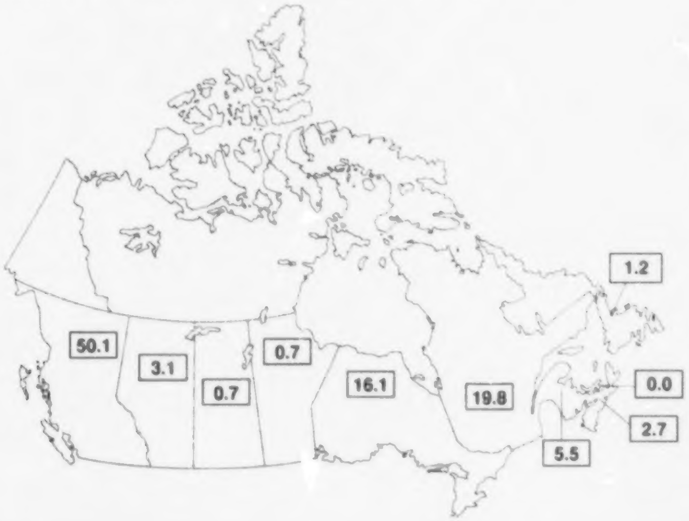
1985 Annual Earnings	$	
Lowest 10% of Workers	16,312	or less
Average Worker	27,358	
Highest 10% of Workers	38,925	or more

Source: 1986 Census

Log Inspecting, Grading, Scaling and Related Occupations 7516

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,880	-3.0	-0.8	1,568
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	93	7	21	64	15	93	7
	1986	89	11	16	74	10	89	11
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Forestry (63)

Manufacturing (26)
- Wood (18)
- Pulp & Paper (7)

Public Administration (4)
- Provincial (3)

Log Inspecting, Grading, Scaling and Related Occupations 7516

Job Environment

This occupational group includes log graders, timber scalers and tree scalers. Their responsibilities include appraising forest areas for timber yield, estimating the usable timber in logs, recording data and preparing topographic maps for management planning. Sometimes they grade uncut timber to determine its suitability as pulp and paper, lumber or plywood veneer. The work is outdoors in forests and logging camps and involves the use of measuring and surveying equipment.

Educational Background and Skills

Employment in this occupation usually requires the completion of a community college or university program in forestry or forestry technology. Some related experience is an asset. Logging operations inspectors must obtain a provincial licence, and usually require a practical training period of several months under the supervision of an experienced inspector.

Nature of Supply

The flow of people into this occupation from related ones should marginally exceed exits to other occupations. This suggests that many move up to these occupations from related lumbering positions. Another channel of entry into this occupation is the post-secondary education system.

The percentage of women in this occupation, although small, has been increasing. The majority of log scalers work in British Columbia, Quebec and Ontario.

The average age (36) and the age structure of this occupation have remained relatively stable and close to the norm for all occupations.

Market Conditions and Job Prospects

Employment in this occupation is extremely sensitive to economic conditions, particularly in the housing sector, which purchases much of the lumber used in Canada. Consequently, employment follows a boom/bust cycle. Increased competition in foreign markets for both lumber and paper, as well as increased protectionism abroad, have also slowed employment growth. Environmental concerns, coupled with a need to open up new areas suitable for timber, will hamper growth in the industry. Employment is expected to decline slightly over the 1989-to-1995 period: of the approximately 1,600 job openings expected, all will be to replace workers who have retired, died, or left this occupation for other reasons.

Employment is seasonal, with most activity occurring in the summer and fall. As scaling becomes computerized, some occupations in this group are becoming obsolete.

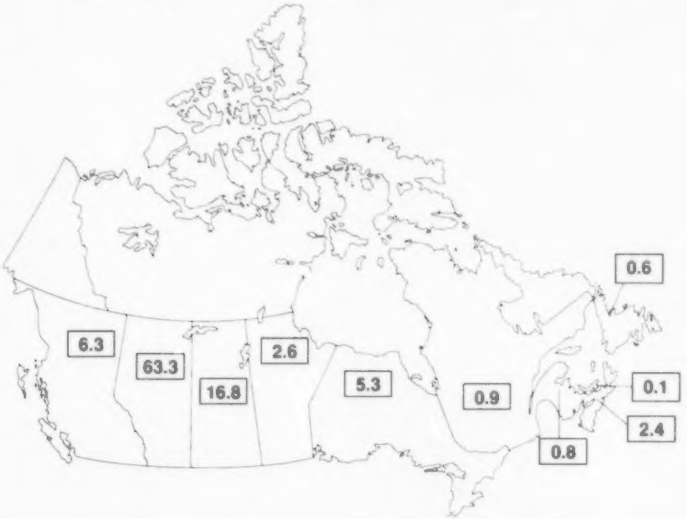
1985 Annual Earnings	**$**	
Lowest 10% of Workers	**17,364**	**or less**
Average Worker	**30,349**	
Highest 10% of Workers	**39,970**	**or more**

Source: 1986 Census

Rotary Well-Drilling and Related Occupations 7711

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	5,208	-4.7	1.2	3,494
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	52	46	2	95	5
	1986	98	2	27	69	4	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Mining (86)
- Mining Services (63)
- Petroleum & Gas (22)

Construction (7)

Services (3)
- Business (2)

Rotary Well-Drilling and Related Occupations

7711

Job Environment

Oil drillers, derrickhands, motorhands and service rig operators sink deep holes to explore for oil and natural gas and service oil and gas wells. Their work involves assembling, erecting and operating drills, lowering and raising drill pipes, bits and instruments and inspecting, testing and servicing wells. This demands both physical stamina and mental alertness, as working conditions are sometimes difficult and hazardous. These jobs are often in remote areas.

Educational Background and Skills

While secondary school graduation is usually a minimum requirement in this occupation, a community college program in resource drilling technology is an asset. Between five and ten years of on-the-job training and experience in other positions on the drill crew are normally required before becoming a driller or a senior operator of a drill rig or service rig.

Nature of Supply

Individuals from other occupations and labour force re-entrants are the main sources of supply to this occupation. Immigration and, to a much lesser extent, the post-secondary education system are minor sources.

Practically all rotary drillers are male, and most live in Alberta or Saskatchewan. A career as a rotary driller lasts between 15 and 20 years, with entry normally occurring between the ages of 21 and 25. Between 1981 and 1986 the average age of drillers increased from 26 to 30, as the number under 25 years of age decreased, and the number aged 25 to 54 increased.

Market Conditions and Job Prospects

The recession in the oil industry and fluctuations in the price of oil depressed growth in this occupation in the early 1980s. Between 1989 and 1995, however, employment growth should be average, with approximately 3,500 jobs becoming available. The majority of these will replace positions for those who retire, die, emigrate or return to the education system.

This occupational group is highly vulnerable to changing economic conditions, and fluctuations in oil and commodity prices. Employment in the group is not, however, significantly affected by changes in technology. While most positions are full-time, employment is distinctly seasonal, with activity slowing in the spring.

1985 Annual Earnings	$	
Lowest 10% of Workers	16,406	or less
Average Worker	32,631	
Highest 10% of Workers	49,105	or more

Source: 1986 Census

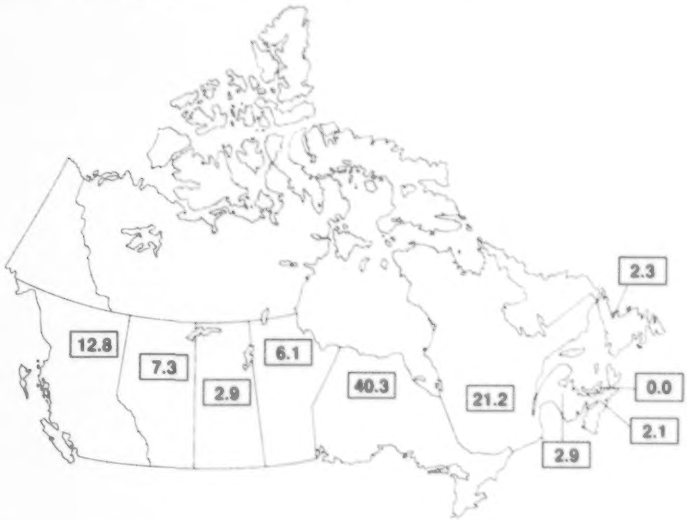
For further information, contact:

International Union of Operating Engineers
Suite 105, 17704-103 Avenue
Edmonton, Alberta T5S 1J9
(403) 483-0421

Rock and Soil Drilling Occupations 7713

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	7,850	-3.5	-1.1	3,874
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	24	71	5	95	5
	1986	98	2	15	79	6	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Mining (69)
- Metals (37)
- Mining Services (22)
- Non-Metal (4)

Construction (21)

Manufacturing (5)
- Primary Metals (4)

Rock and Soil Drilling Occupations

7713

Job Environment

This occupational group includes air-drill operators, blast-hole drillers, auger operators and coal drillers. Their work involves using explosives in underground and surface mining, in quarries and on construction projects; operating drills; breaking and separating rock; and installing air and water pipelines leading to the working surface. The physical demands of the work are heavy and work can be above ground or underground. Although workers are exposed to difficult conditions, safety, health and sanitary standards are rigidly monitored and hazards are known, recognized and controlled.

Educational Background and Skills

There is no minimum educational level required for employment in this occupation, but completion of secondary school is preferred and workers must be at least 18 years old. Most drillers acquire their skills through on-the-job training and experience under the supervision of an experienced driller or miner. Formal training in drilling and drilling technology may reduce the required period of on-the-job learning.

Nature of Supply

The main sources of supply for this occupation are the secondary school system and individuals from other occupations. Minor sources include the military and immigrants.

The average age in this occupation is 35. Virtually all drillers are men and employment is concentrated in Ontario, Quebec and British Columbia.

Market Conditions and Job Prospects

Labour market conditions have been poor in this occupation, with an unemployment rate above average. Employment has been falling since the 1970s because of mine closures and layoffs resulting from a deteriorating market situation and increased foreign competition.

The employment outlook for these occupations calls for below-average growth over the forecast period, based on prospects for the metal mining and construction sectors. Approximately 3,800 drillers will be needed in the next six years to fill new jobs and to replace personnel who leave because of death, retirement or to return to the household or educational system.

Employment among drillers is moderately susceptible to changes in business conditions, particularly fluctuations in commodity prices and demand for metals. Employment is not seasonal. New mining methods, the development and adoption of new drilling equipment, and increasing computerization in the form of computer-aided mining machinery and underground computer terminals will result in a demand for more highly skilled workers in this occupational group.

1985 Annual Earnings	$	
Lowest 10% of Workers	18,091	or less
Average Worker	34,899	
Highest 10% of Workers	49,272	or more

Source: 1986 Census

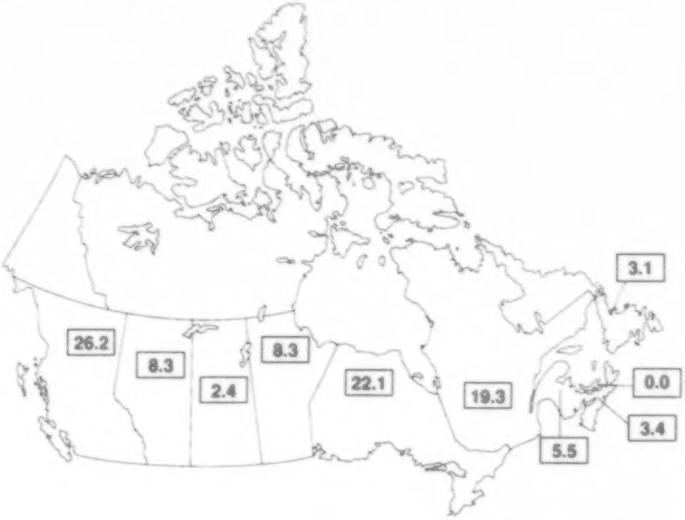
For further information, contact:

International Union of Operating Engineers
Suite 105, 17704-103 Avenue
Edmonton, Alberta T5S 1J9
(403) 483-0421

Blasting Occupations 7715

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,647	-2.9	-0.5	879
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	27	62	11	95	5
	1986	98	2	12	78	10	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Mining (49)
- Metals (26)
- Non-Metal (11)
- Mining Services (6)

Construction (26)

Forestry (9)

Blasting Occupations

7715

Job Environment

This group includes oil-well shooters, dynamiters, chute blasters and seismograph shooters, who are concerned with detonating explosives to demolish structures on construction sites and with mineral, oil and natural gas exploration. This type of work is usually performed outdoors. While exposure to gas fumes and noxious vapours is unavoidable, proper use of safety equipment minimizes risk.

Educational Background and Skills

There are no specific educational requirements for employment in these occupations. Candidates must be at least 18 years old, have good hearing and eyesight, reasonable strength, and good manual dexterity and physical co-ordination; they must also be emotionally stable, capable of teamwork and show initiative. Most blasters acquire the necessary skills through on-the-job training and experience. Dynamiters must have a knowledge of safety regulations to handle explosive materials and use blasting equipment.

Nature of Supply

Major sources of supply for this occupation include individuals from other occupations and the formal education system. The military and immigration also contribute to the supply.

Blasting is an overwhelmingly male occupation and concentrated in British Columbia, Ontario and Quebec, where mining activity is heaviest. Between 1981 and 1986, there was a significant decrease in the proportion of blasters under the age of 25 and an almost corresponding increase in the proportion aged 25-54. A typical career spans 20 to 25 years, with entrance normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Since the 1982 recession, labour market conditions in this field have been poor. This occupational group is particularly vulnerable to changes in the mining industry, and based on forecasts for the mining and construction sectors, the employment outlook calls for below-average growth between 1989 and 1995, with approximately 879 jobs becoming available. These will result from the need to replace existing personnel who die, retire or return to the household or educational system.

Most of the job opportunities occur in the spring, summer and fall, while there is a slight slowdown during the winter months.

There is little part-time work available and rotating shift work is the usual work schedule.

1985 Annual Earnings	$	
Lowest 10% of Workers	19,241	or less
Average Worker	31,995	
Highest 10% of Workers	44,686	or more

Source: 1986 Census

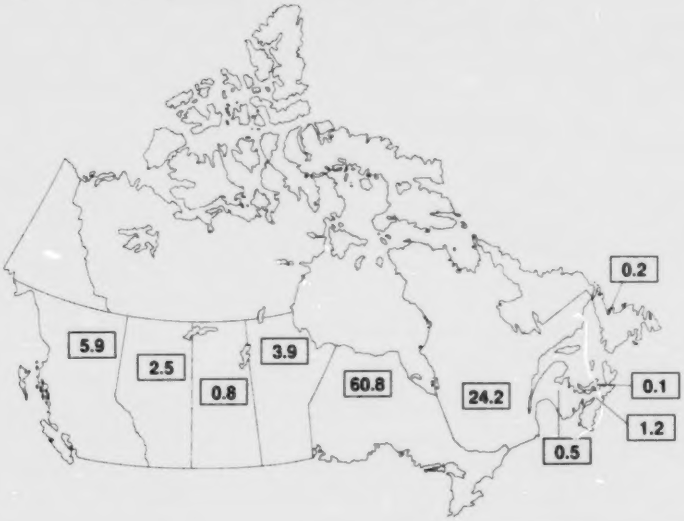
For further information, contact:

International Union of Operating Engineers
Suite 105, 17704-103 Avenue
Edmonton, Alberta T5S 1J9
(403) 483-0421

Metal Mouldmaking, Coremaking and Metal Casting Occupations 8137

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,697	-3.1	0.3	4,720
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	94	6	25	63	12	96	4
	1986	94	6	18	72	10	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (96)
- Primary Metals (59)
- Metal Fabricating (19)
- Motor Vehicles & Trailers & Parts (8)

Construction (1)

Trade (1)
- Wholesale (1)

Metal Mouldmaking, Coremaking and Metal Casting Occupations 8137

Job Environment

Occupations in this group include bench moulders, die casters, floor moulders and metal casters. Traditionally, moulds are built using a model called a pattern. A hand moulder presses and compacts a mixture of specially treated sand, clay, water and various chemicals about the pattern with a number of hand tools. However, the metal-casting process has since grown considerably in complexity and sophistication, employing such techniques as "wax-loss" and "foam-loss" to produce highly complex shapes. Technological advances now allow the fast and precise construction of moulds through the use of modern, electronically-controlled moulding machines.

Moulders today work in clean, well-lit and well-ventilated foundries. Safety equipment and protective clothing are usually required on the shop floor. Changing technology requires moulders to set up, operate and maintain modern machinery and participate in inspection, in addition to mastering traditional skills.

Educational Background and Skills

Grade 10 is the minimal educational level for this occupation, but moulders generally acquire and develop their skills on the job. Moulders must enjoy working with objects and machinery, pay attention to detail and take pleasure in craftmanship. The physical requirements call for average strength, some tolerance for standing on one's feet and good hand-eye co-ordination.

Moulders may advance to supervisors, casting inspectors or group leaders. With additional education and experience, capable moulders may become managers or lab technicians.

Nature of Supply

High school graduates and industrial engineering graduates from community colleges are the main sources of supply to this field.

This occupational area remains predominantly male; its age profile is similar to that of the all-occupation average.

Market Conditions and Job Prospects

The introduction of automated processes and the use of stronger materials (leading to longer-lasting moulds) in the 1970s reduced requirements for labour in this area. Over the next six years, about 4,700 jobs will open up, almost all of which will be replacement opportunities.

Most of the work in this occupation is full-time and stable throughout the year. However, employment may be somewhat sensitive to changes in business conditions, especially in the metal products sector.

This occupational group does not include plastic mould making, an area which has experienced strong growth in recent years and which is expected to continue to expand well into the future.

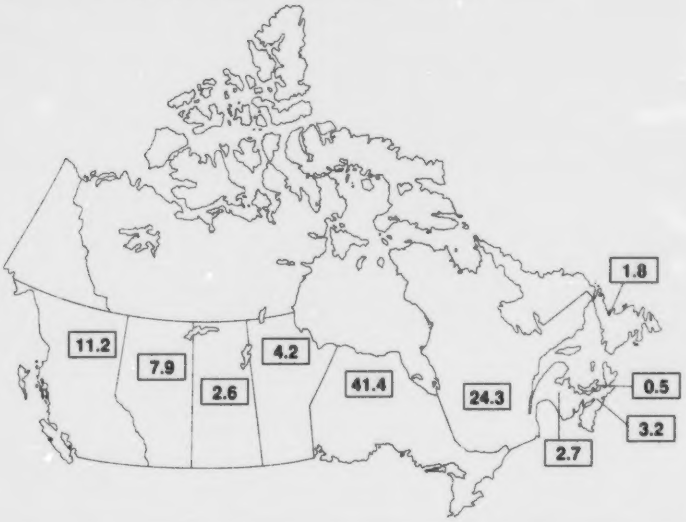
1985 Annual Earnings	$	
Lowest 10% of Workers	15,367	or less
Average Worker	27,083	
Highest 10% of Workers	40,568	or more

Source: 1986 Census

Baking 8213

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	35,780	3.7	3.1	19,406
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	63	37	33	57	10	81	19
	1986	58	42	29	60	11	76	24
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (57)
- Food & Beverages (56)

Trade (27)
- Retail (25)
- Wholesale (2)

Services (16)
- Accommodation & Food (14)

Baking

8213

Job Environment

This group includes occupations concerned with making bakery and confectionery products such as breads, cakes and pastries. Bakers must understand the procedures and methods necessary for the hygienic production of baked goods. These procedures include personal sanitation, equipment sanitation, sterilization, and correct refrigeration and storage of raw ingredients and baked products. In large bakeries, operations have been streamlined in order to employ machinery, and each worker performs only selected tasks. In medium-sized bakeries, some functions are performed by hand rather than machine. In small bakeries, the baker performs all required tasks.

Educational Background and Skills

The best training for baking is acquired through an apprenticeship or an on-the-job training program in a medium-sized or small bakery.

The minimum educational requirement for this occupation is Grade 9 or the equivalent. Increasingly, this industry is searching for people with secondary school graduation or college training and an understanding of mathematics, biology and chemistry.

Nature of Supply

Most people employed in this occupation have not graduated from high school. Although most people are male, the proportion of female bakers has increased in recent years, and gender distribution in this field is similar to that of other occupations.

This occupation employs a high proportion of young people, possibly because a high school diploma is not required for employment.

Market Conditions and Job Prospects

Technological advances in production and mechanization techniques have resulted in the five-day week becoming the norm within the industry.

Employment is fairly constant throughout the year, with little seasonal variation. Those working at large bakeries may have to work at night.

During the 1980s, employment growth exceeded that of other occupations, and strong growth is expected to continue through to 1995. Between 1989 and 1995, about 19,000 job openings are expected across the country.

Earnings

Most workers in a bakery are paid hourly wages, but foremen/women, supervisors and managers are usually paid a salary. Earnings depend on location of employment as well as on the type of job and the productivity of the worker. Usually, bakeries in large cities have higher wages than those in small towns.

1985 Annual Earnings	$	
Lowest 10% of Workers	8,601	or less
Average Worker	18,374	
Highest 10% of Workers	29,898	or more

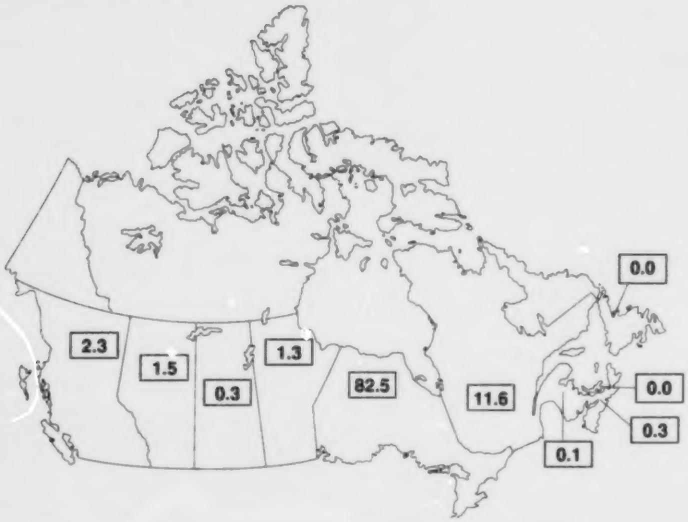
Source: 1986 Census

Tool and Die Making Occupations

8311

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%)		Number of Job Openings 1989 - 1995
		Actual 1981 - 1989	Projected 1989 - 1995	
This Occupation	14,852	2.2	2.7	9,213
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	19	63	18	97	3
	1986	97	3	16	67	17	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (93)
- Metal Fabricating (44)
- Motor Vehicles & Trailers & Parts (22)
- Machinery (6)

Trade (3)
- Wholesale (2)

Services (2)
- Miscellaneous (1)

Tool and Die Making Occupations

8311

Job Environment

Tool and die makers fabricate and repair the cutting tools, dies and fixtures which are used to form metals, plastics and other materials. From technical drawings and specifications they calculate required dimensions and tolerances, and then set up and operate metal-working machinery. In their work, they machine parts to close tolerances, apply heat treatments and then assemble and test their products. In many shops, tool and die makers may specialize in one or more activities. Increasingly, they are required to operate numerically controlled or computer-programmable machinery.

The work is indoors and often involves exposure to noise and hazards and requires the use of safety equipment. Physical activities may include lifting, carrying and periods of standing. Shift work is common.

Educational Background and Skills

Tool and die making apprenticeship programs are offered in Ontario, Manitoba and British Columbia. The program has a nominal duration of four years (five years in British Columbia). Grade 10 is required, although most employers prefer Grade 12. The trade may also be entered by becoming a qualified machinist and then acquiring broad machining experience and upgrading training. Community colleges and technical institutes offer upgrading courses.

Nature of Supply

The workforce in the tool and die trade is composed primarily of men; women are encouraged to consider tool and die making as a career in view of the favourable employment outlook and the possibility of good earnings. The age structure of the trade shows fewer young and more old workers than the average; this is partly a reflection of the need for experience in machining as a prerequisite for upgrading to tool and die making. Young persons entering the trade do so most often between the ages of 17 and 22 years; older, experienced workers also enter the trade in significant numbers. It is common for tool and die makers to remain with the trade until retirement. In past years, immigration has provided a significant number of trained personnel to the trade, although training has been the most important source of supply.

In 1986, 93% of tool and die makers worked on a full-time basis.

Market Conditions and Job Prospects

The employment outlook for tool and die makers is excellent, with job growth projected to expand at a rate considerably above the all-occupational average. The great majority of tool and die makers work in manufacturing industries, particularly metal fabricating, and motor vehicles and parts. These industries are expected to be modernized and expanded over the early 1990s, resulting in increased demand for tradespeople with up-to-date skills. While overall levels of employment in the trade are expected to increase, additional jobs will result from replacement needs due to retirements and career changes.

The work of tool and die makers is steady throughout the year, but its concentration in manufacturing makes it somewhat sensitive to general economic conditions.

The bulk of employment in tool and die making is found in Central Canada.

1985 Annual Earnings	$	
Lowest 10% of Workers	16,820	or less
Average Worker	30,996	
Highest 10% of Workers	45,555	or more

Source: 1986 Census

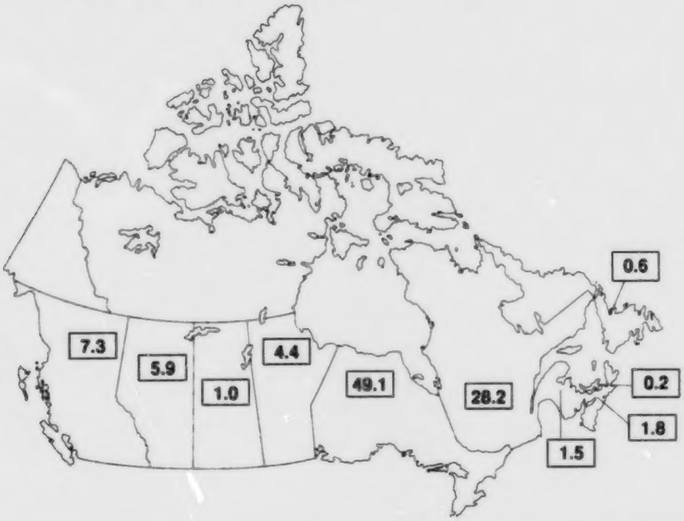
For further information, contact:

Canadian Tooling Manufacturers
Association
1425 Bishop Street, Units 8 & 9
Cambridge, Ontario N1R 6J9
(519) 622-4302

Machinist and Machine Tool Setting-Up Occupations 8313

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	50,645	1.2	2.2	29,188
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	25	63	12	97	3
	1986	97	3	16	72	12	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (81)
- Metal Fabricating (32)
- Machinery (13)
- Motor Vehicles & Trailers & Parts (6)

Transport & Communications & Utilities (7)
- Rail Transport (5)

Trade (4)
- Wholesale (4)

Machinist and Machine Tool Setting-Up Occupations

8313

Job Environment

Machinists operate metal-working machines according to the specifications of engineers or designers. They set up metal-working machinery (such as lathes, drill presses and boring machines), read and interpret specifications and blueprints, calculate dimensions and tolerances, lay out their work and mark pieces for machining. Some machinists specialize in certain types of equipment or materials.

Machinists work indoors, usually in areas that are noisy, dirty and potentially hazardous. They must frequently lift and carry objects, and most of their work is done on their feet. A five-day work week of 35 to 40 hours is standard, and shift work and overtime are common.

Educational Background and Skills

Apprenticeship is required in all provinces except Quebec, where machinists usually follow professional training courses through adult education. The usual apprenticeship period is four years, and the entrance requirement is Grade 9 in New Brunswick, Manitoba and Alberta and Grade 10 in all other provinces.

Nature of Supply

The workforce in the machinist trade is predominantly male. In 1986, the proportion of machinists in the 15-to-24 year age group was lower than the average for all occupations reflecting limited job opportunities in this field during the 1981 recession. Most people enter this trade between the ages of 17 and 25, many after first gaining some work experience. Machinists tend to remain in this occupation for most of their working lives. In recent years, immigration has been a major source of trained machinists. In 1986, 93% of machinists worked on a full-time basis.

Market Conditions and Job Prospects

Employment of machinists over the 1989-to-1995 period is projected to grow at a rate above the average for all occupations. The bulk of machinists are employed in the manufacturing industries, but many are also found in transport and trade, mainly in maintenance or service capacities. Through the early 1990s, capital investment in the manufacturing sector is expected to be considerable, and this will stimulate demand for the most advanced machining skills, especially those involving the operation of computer-controlled machining equipment.

Employment opportunities will also arise from the need to replace people leaving the occupation, which is expected to occur at a rate just below the all-occupation average. The employment of machinists shows little seasonal variation, and economic slowdowns can reduce employment prospects, although these reversals are short-lived.

1985 Annual Earnings	$	
Lowest 10% of Workers	15,078	or less
Average Worker	26,704	
Highest 10% of Workers	39,085	or more

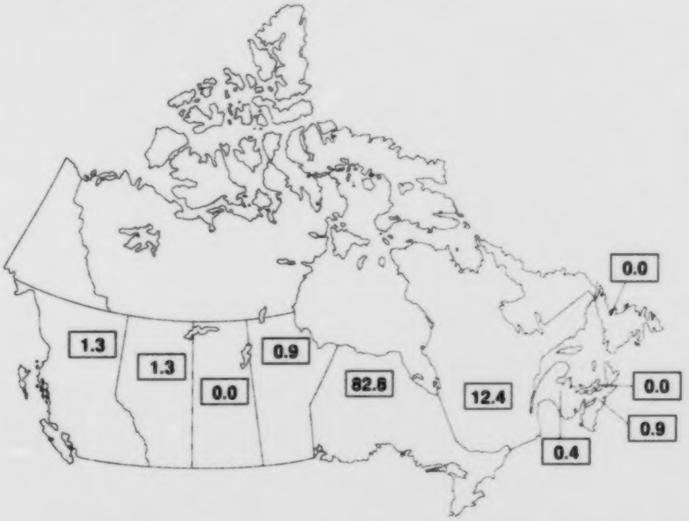
Source: 1986 Census

Inspecting, Testing, Grading and Sampling Occupations: Metal Machining

8316

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	2,594	2.4	1.9	1,430
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	86	14	13	70	17	96	4
	1986	74	26	13	73	14	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (93)
- Motor Vehicles & Trailers & Parts (50)
- Metal Fabricating (21)
- Machinery (7)

Trade (4)
- Wholesale (4)

Inspecting, Testing, Grading and Sampling Occupations: Metal Machining

8316

Job Environment

This classification includes auto parts inspectors, tool and die inspectors, gear testers and machine shop inspectors, jobs which reflect either the nature of the product being made or the type of operation performed on the product. Metal-machinery inspectors test and inspect machined products and, often, the machinery or tools and dies that are used to form these products. They must be familiar with various testing and measuring techniques as well as tools and instruments, such as micrometers, calipers, plug gauges, gear-measuring wires and vernier gauges.

In many organizations, the scope of duties performed by inspectors is slowly diminishing because of increased use of automated sensing and measuring devices, and machinery with self-diagnostic features. In some industries, (automotive, for example) responsibilities are being reorganized so that production workers can inspect and test, reducing the requirements for full-time inspectors. Changes are occurring at various rates in different industries, but the impact will be gradual and the need for metal-machining inspectors will be completely eliminated.

Metal-machining inspectors are found almost exclusively in manufacturing industries, and larger firms and companies dealing in volume production are more likely to employ inspectors than smaller firms or firms dealing in custom work. Metal-machining inspectors work indoors and require only moderate physical activity. A 35-to-40 hour work week is usual, but shift work is not uncommon.

Educational Background and Skills

An ability to read and interpret technical drawings and specifications, visual acuity and attention to detail are requisite skills for this occupational group. There are no formal educational requirements for these occupations, although a Grade 10 education is typically required by employers.

Nature of Supply

Entry into this occupational area is normally through promotion from within, after the employee has acquired a thorough knowledge of products and processes. Career advancement opportunities from this occupational area are limited without additional education, training or experience. Testing and inspection requiring sophisticated equipment and techniques are more often carried out by technicians, technologists, designers or even engineers.

In 1986, one of every four metal-machining inspectors was female. Compared to the average for all occupations, the labour force for this occupation has fewer 15-to-24 year olds and slightly more workers 55 and older. This reflects the normal career progression from the metal-machining trades to inspector as skill level and experience are acquired. In 1986, 90% of inspectors in this group worked on a full-time basis.

Market Conditions and Job Prospects

Over the 1989-to-1995 period, employment of metal-machining inspectors is expected to grow at a rate greater than the average for all occupations. This outlook is based on projections for the manufacturing industries, particulary output of motor vehicles and parts, and metal fabricating, which employ inspectors in this group. Countering this is the likelihood of continuing technological and organizational changes which might limit employment growth through increased productivity. Most job openings are expected to result from replacement needs due to retirements and career changes.

While employment of metal-machining inspectors shows seasonal fluctuation, reductions in economic activity (in particular motor vehicle production), can lead to higher unemployment.

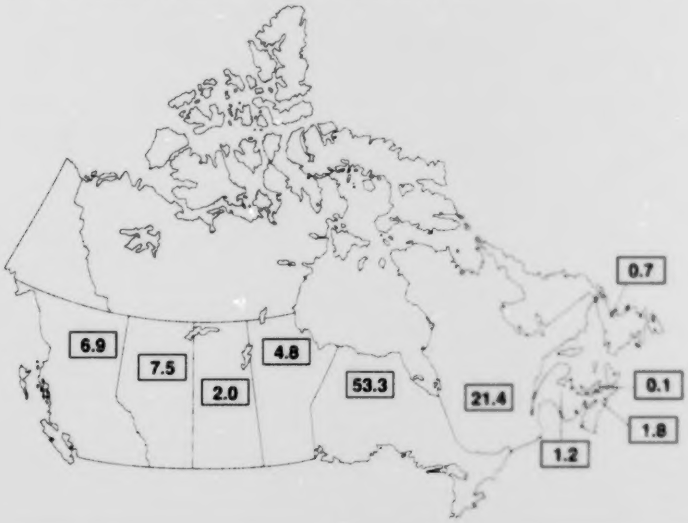
1985 Annual Earnings	$	
Lowest 10% of Workers	15,181	or less
Average Worker	27,469	
Highest 10% of Workers	41,776	or more

Source: 1986 Census

Sheet Metal Workers 8333

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	21,366	-2.0	0.1	14,551
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	94	6	27	63	10	95	5
	1986	94	6	17	73	10	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (54)
- Metal Fabricating (25)
- Motor Vehicles & Trailers & Parts (7)
- Primary Metals (5)

Construction (36)

Trade (3)
- Wholesale (3)

Sheet Metal Workers

8333

Job Environment

This occupational group covers workers who fabricate products from sheet metal, mostly employed in manufacturing industries and producing such items as large appliances, air conditioning systems and motor vehicles. Roughly one-third specialize in construction where they fabricate duct work, metal walls and siding, kitchen assemblies and roof drainage systems. Much of the work takes place in shops, where sheet metal assemblies are constructed before being installed in buildings.

Sheet metal workers perform diverse functions ranging from draughting patterns to measuring and laying out templates, and cutting, shaping and fastening sheet metal (copper, steel and aluminum). They may use hand tools or such machines as brakes, shears or rollers.

Sheet metal workers who fabricate and install assemblies on a construction site often work in cramped, awkward positions and at heights. Usually, manufacturing or shop work is performed indoors, as is much construction installation. Work on roofing components is outdoors.

Sheet metal workers are often employed by specialty contractors and enjoy regular hours. Many are members of construction unions and work on a project-by-project basis, with work being allocated by a hiring hall.

Educational Background and Skills

Apprenticeship is the usual means of entry into the trade. Apprenticeship programs, lasting from three years in Quebec to five years in Ontario, are offered in all provinces. Minimum requirements are Grade 9 in Newfoundland and Grade 10 in all other provinces except Quebec and Alberta which have no minimum. Training complying with the Interprovincial Standards Programme is recognized in all provinces. Qualifications as sheet metal tradesmen/women are compulsory in Quebec, Ontario, Saskatchewan, Alberta and British Columbia.

People considering sheet metal work as a career should possess mechanical aptitude and be in good general health.

Nature of Supply

This work force is predominantly male, although by 1986, 6% of sheet metal workers were women. The age distribution of the trade workforce is nearly the norm for all occupations; however, the proportion of younger workers (15-to-24 years of age) had fallen from 27% to 17% by 1986, as a result of fewer apprenticeships during the recession. Since 1986, apprenticeships have again increased. In recent years, the usual age of entrants is 17-to-23 years. Immigration provides only a minor source of experienced workers to the trade.

Over 94% of sheet metal workers were employed full-time in 1986.

Market Conditions and Job Prospects

Employment fell during the 1981-to-1982 recession and rose again by 1986, although not regaining previous levels. In 1986, 36% of sheet metal workers were employed in the construction industry and 54% were employed in manufacturing, mostly fabricating items to be installed in buildings and other structures, although some sheet metal work is required for motor vehicles and other products.

Expected employment gains are in excess of the projections shown on the table opposite. In on-site construction, employment of sheet metal workers should increase at an above average rate over the 1989-to-1995 period. In-shop construction should see a similar increase. Employment in non-construction related activity is expected to remain at about the 1989 level. With replacement demand due to retirements and people leaving the trade taken into account, job prospects appear good especially in Ontario and Quebec, where industrial growth and construction are expected to be strong. Through the mid-1990s and beyond, resource-related construction is expected to stimulate demand in other regions.

Employment in the sheet metal trade can be sensitive to changing economic conditions especially as they affect construction and metal fabricating. Employment is also subject to seasonal variations through the year, peaking during the warm-weather months.

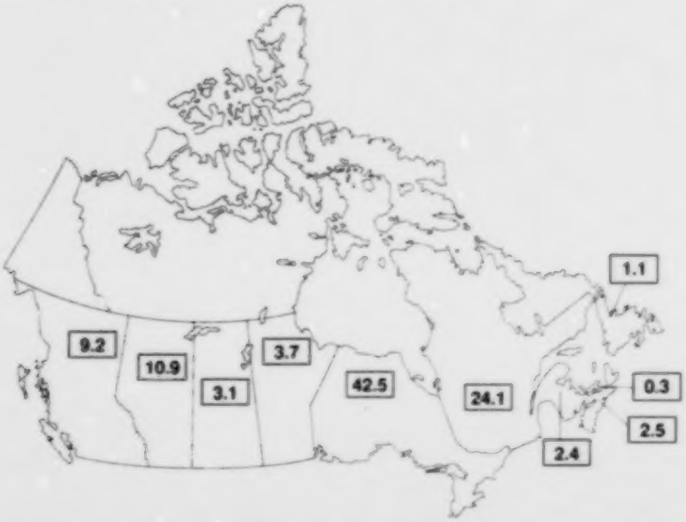
1985 Annual Earnings	$	
Lowest 10% of Workers	13,861	or less
Average Worker	26,165	
Highest 10% of Workers	39,417	or more

Source: 1986 Census

Welding Occupations 8335

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	81,720	-1.4	0.4	58,162
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	96	4	24	68	8	96	4
	1986	95	5	15	76	9	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (58)
- Metal Fabricating (16)
- Machinery (10)
- Motor Vehicles & Trailers & Parts (10)

Services (15)
- Miscellaneous (14)

Construction (9)

Welding Occupations

8335

Job Environment

Welding occupations involve the joining and cutting of metals using welding equipment. Numerous specialties exist, depending on the type of welding equipment and techniques used, the nature of the final product and the degree of expertise required. Arc, gas, combination, submerged arc, resistance and pressure vessel welding are among the specialties as is welding-fitting. Usually welders must know several welding techniques, even though they might only use one or two in their jobs.

Construction welders work mainly outdoors at construction sites, whereas production welders, employed to assist manufacturing processes, work indoors on a shop or factory floor. The physical demands of welding may be heavy. Lifting and carrying heavy items is often required, as are prolonged periods of standing and crouching. As well, a welder may be exposed to very hot temperatures, noise, fumes and dust. A normal work week is five days of 35 to 40 hours, although shift work is not uncommon in this trade.

Educational Background and Skills

Provincial certification is required for welders of pressure vessels, although for most other welding categories certification is desireable but not compulsory. Training is done usually by apprenticeship or other types of on-the-job learning. Certification requirements vary from province to province, but after passing the required examination welders may receive an interprovincial seal which recognizes their skills in other provinces or territories. In most cases, a minimum of Grade 10 is required for apprenticeship; in other cases (e.g., welder-fitters who are required to read blueprints and lay out their work) employers expect a higher level of general education. A skilled welder may advance to inspecting or supervisory jobs after gaining experience. Sometimes experienced welders open their own welding and metal fabricating businesses.

Nature of Supply

Most people entering this occupational area come from a trade/vocational school or from an apprenticeship-training program. Immigration has also been an important and steady source of supply.

In 1986, males comprised 95% of the workforce in the welding occupations, although more women are entering the trade. The age distribution of the workforce in welding shows relatively fewer younger and older workers when compared to the average for all occupations. Entry usually occurs between the ages of 17 and 24. According to the 1986 census, 89% of welders worked on a full-time basis.

Market Conditions and Job Prospects

In 1986, 58% of welders were employed in the manufacturing industry, 15% in services and 9% in construction.

Based on projections for these industries, the outlook is for modest employment growth for welders over the 1989-to-1995 period. Future employment growth may be muted by technological changes: increased use of automation and robotics in manufacturing plants will reduce the requirements for welding machine operators, and more programmable cutting machines will slow employment growth for flame cutters who use manual methods. Innovations have limited unemployment growth for lower skilled welders, but the prospects for highly skilled manual welders are better.

Job openings for welders will result principally from replacements due to turnover and career changes. Retirement from the labour force will play a lesser role. The project-by-project nature of much employment creates some opportunities for people entering the occupation, although prospects are best for those certified as having special welding skills.

Most welding jobs are full-time in nature. Welders are subject to layoffs that are seasonal in construction and in re-tooling production lines. The employment of specialty welders may be irregular since their services are more likely to be required for periodic or occasional plant overhauls. Employment in this occupational group is sensitive to fluctuations in general economic conditions.

1985 Annual Earnings	$	
Lowest 10% of Workers	13,990	or less
Average Worker	26,208	
Highest 10% of Workers	39,768	or more

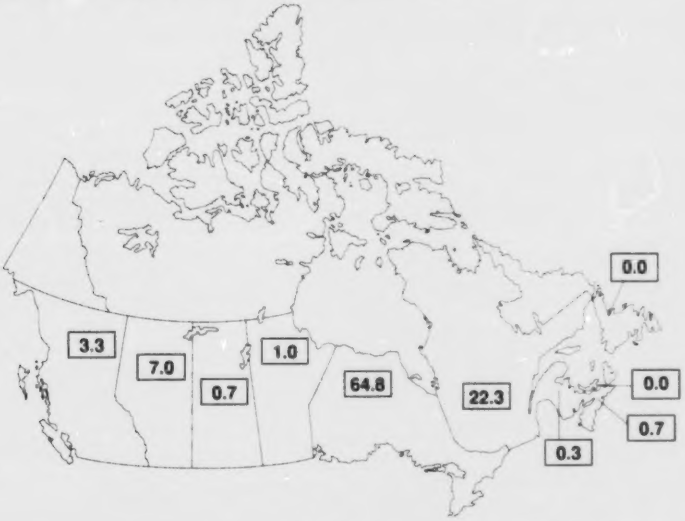
Source: 1986 Census

Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining

8336

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,543	-4.7	0.5	1,099
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	88	12	19	63	18	97	3
	1986	81	19	14	68	18	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (84)
- Metal Fabricating (51)
- Primary Metals (11)
- Motor Vehicles & Trailers & Parts (8)

Services (8)
- Business (4)
- Miscellaneous (3)

Transport & Communications & Utilities (4)
- Electric Power (2)

Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining

8336

Job Environment

A wide variety of inspectors and testers are included in this group, ranging from skilled welding inspectors to inspectors of tin cans. Generally, they are employed in manufacturing plants to test and inspect metal parts that are shaped or formed using methods other than machining, such as welding, extrusion, forging and stamping. Each type of metal-shaping process requires specific knowledge and experience on the part of the inspector. Inspectors of final products assembled from metal parts (automobiles, trailers, electronic equipment, electrical products, machinery, etc.) are classified elsewhere (see standard occupational codes 8526 and 8536), as are inspectors of machined metal products and metal castings (see standard occupational codes 8316 and 8396).

Methods used by welding inspectors, the most prevalent occupation in this grouping, include visual inspection and the use of precision measuring instruments, fluorescent penetrants, X-ray, ultrasonic and magnetic testing equipment.

Educational Background and Skills

Educational requirements range from specialized formal training for higher-level functions, to Grade 10 for less demanding inspection positions. Welding inspectors, for example, must have training and experience in welding, in order to know the different types of welding equipment and techniques or the properties of different metals that are to be joined or cut. In some applications, they must be aware of regulations governing the quality of welds. At the other extremes, extensive training is not required of a worker who detects and removes burrs on cut metal edges. Inspectors are normally promoted from within their organization, usually after acquiring considerable experience and demonstrating a knowledge of both the company's products and processes. Career advancement opportunities from this occupational area are limited.

Nature of Supply

According to the 1986 census, while the majority of workers in this occupation were male, the number of females has been rapidly increasing to reach 19% of the workforce. This occupation comprises more older workers and fewer younger workers than is the norm for all occupations, reflecting the normal career progression whereby younger workers build up skills in metal working before being promoted to inspectors. In 1986, 9% of workers in this occupational group worked part-time.

Market Conditions and Job Prospects

In 1986, most metalwork inspectors (84%) were employed in the manufacturing of metal products, primary metals, vehicles and vehicle parts. A further 8% were employed in the service industries, mainly in support of manufacturing activities.

Employment levels over the 1989-to-1995 period are projected to have little change. However, job opportunities will occur as a result of retirement and career changes. The relatively high number of older workers in this occupation indicates a higher-than-average rate of retirement in coming years.

Employment in this occupation is subject to some slight seasonality, with lower employment occurring in winter months, and shows sensitivity to cyclical economic fluctuations.

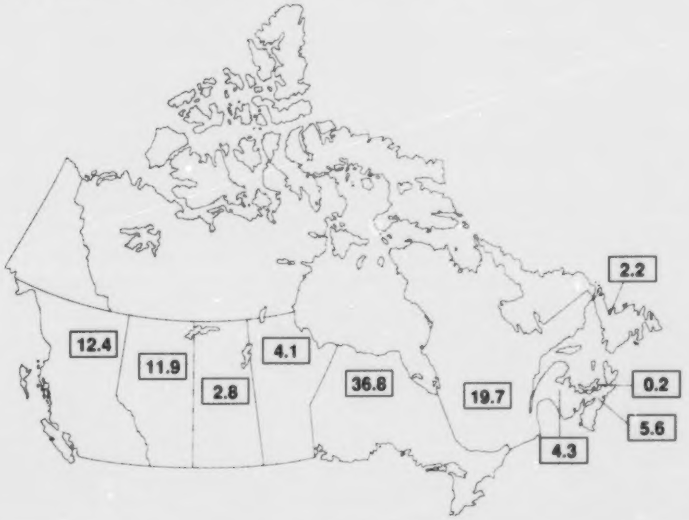
1985 Annual Earnings	$	
Lowest 10% of Workers	16,465	or less
Average Worker	28,420	
Highest 10% of Workers	39,812	or more

Source: 1986 Census

Boilermakers, Platers and Structural Metal Workers 8337

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	2,884	-5.1	-1.6	1,187
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	18	70	12	93	7
	1986	98	2	7	77	16	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (52)
- Metal Fabricating (29)
- Shipbuilding & Repair (5)
- Primary Metals (4)

Construction (17)

Transport & Communications & Utilities (16)
- Rail Transport (9)
- Electric Power (6)

Boilermakers, Platers and Structural Metal Workers 8337

Job Environment

Boilermakers fabricate, assemble and repair boilers, tanks, pressure vessels and other heavy metal structures, which are used in a variety of industrial settings, such as chemical and petrochemical manufacturing, pulp mills, oil and gas refining and ship building. Boilermakers fabricate components of boilers and tanks in a shop or factory and then install or assemble the final products on site. In their work, boilermakers interpret detailed plans and make measurements for metal plates and tubes, using a wide range of metal working machines, welding equipment and other hand and power tools.

Working conditions are often cramped and uncomfortable, and involve exposure to chemical vapours, wetness or high noise levels. When inside boilers and other vessels, boilermakers must often work at considerable heights. Protective clothing and other safety gear is routinely used.

Educational Background and Skills

The recommended avenue of entry into the boilermaking trade is apprenticeship. All provinces offer apprenticeship programs in boilermaking, mostly lasting three years, except in Prince Edward Island and Ontario, where four years are normally required. Educational requirements are Grade 9 in New Brunswick, Manitoba and Saskatchewan and Grade 10 in all other provinces except Quebec and Alberta, where no minimum is specified. Under the Interprovincial Standards Programme, approved training obtained in any province is recognized across Canada. Qualifications as tradesmen/women are compulsory in Quebec.

Nature of Supply

Males comprise over 98% of this workforce, but women are encouraged to enter the trade in light of the favourable employment opportunities and high wages offered. The proportion of older workers is somewhat larger than for all occupations. New entrants to the trade are usually between 19 and 24 years of age. Although some boilermakers make a career of the trade, many choose other occupations well before retirement. In past years, immigration has provided a flow of trained personnel to the trade, although apprenticeship is the principal source of new tradespersons. In 1986, some 18% of this workforce was part-time; however, this may have been partially a result of the lack of full-time work as the recovery from the recession was still underway in some regions of the country.

Many boilermakers are union members, particularly those working in construction, where work is organized on a project-by-project basis. Boilermakers employed in a plant or factory usually work between 35 and 40 hours per week, with occasional overtime.

Market Conditions and Job Prospects

Expected employment gains are in excess of the projections shown on the table opposite. In construction, an above average increase is expected as the result of continuing high levels of industrial construction in Central Canada over the early 1990s, followed by a resurgence of investment in resource extraction in the mid-1990s. In 1986, contract construction accounted for 17% of employment, but because much work occurs in a shop setting to support the on-site construction, continuing high levels of on-site work suggest similar high levels of in-shop activity. Replacements for retirements and career changes will provide another source of openings. The proportion of boilermakers in the 55-plus age category in 1986 suggests that the number of retirements over the 1989-to-1995 period should be greater than the average for all occupations.

Work for boilermakers can decline during economic downturns, with those in construction being most adversely affected. Countering this possibility of decline are the potentially high earnings available.

Employment is stable throughout the year.

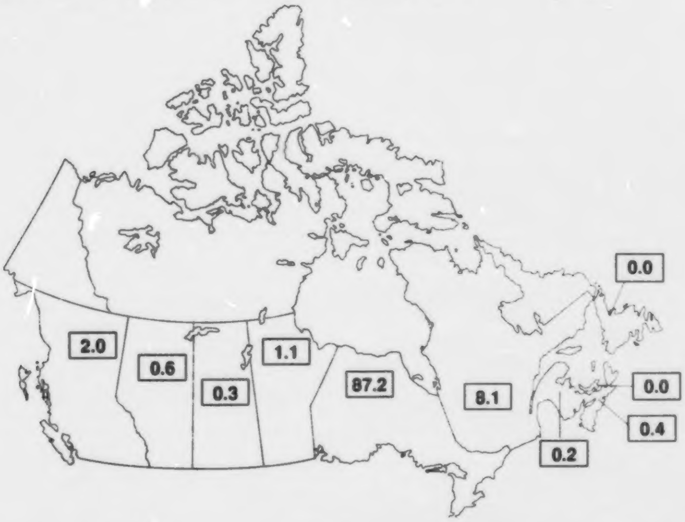
1985 Annual Earnings	$	
Lowest 10% of Workers	16,892	or less
Average Worker	28,815	
Highest 10% of Workers	42,301	or more

Source: 1986 Census

Auto Fabrication and Assembly 8513

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	49,560	7.4	2.1	36,454
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	84	16	22	71	7	96	4
	1986	80	20	16	77	7	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (97)
- Motor Vehicles & Trailers & Parts (89)
- Textiles (3)
- Rubber & Plastics (2)

Trade (2)
- Retail (1)

Auto Fabrication and Assembly

8513

Job Environment

Occupations in this group include automotive builder, truck-trailer builder, automotive assembler and trailer-frame assembler.

They are concerned with fabricating and assembling motor vehicle parts and components to form sub-assemblies and finished motor vehicles. This involves fitting, bolting, and riveting to install parts, and sub-assemblies such as engines, transmissions, door panels and instrument panels.

Educational Background and Skills

The minimum educational requirement for these occupations is Grade 12 with good reading and math skills. A basic understanding of mechanical processes is an asset. The skills for this occupation are acquired through on-the-job training.

Nature of Supply

This occupation is predominately male, but the proportion of females grew from 16% to 20% between 1981 and 1986. Sources of supply to this filed include the educational system, immigration and people re-entering the labour force.

Eighty-seven percent of people in this occupation reside in Ontario. Most of the work is full-time, and there is very little part-time work available.

Market Conditions and Job Prospects

Employment growth was exceptionally strong during the 1980s, and above-average growth is expected over the forecast period. About 36,000 job openings are anticipated between 1989 and 1995, of which 30,000 will be to replace workers who die, retire, or leave the occupation.

Since most of the employment in this occupation is in the motor vehicle and trailer and parts industries, it is the fortunes of these industries that dictate future employment levels. A general slowdown in the economy would result in slower than expected employment growth.

1985 Annual Earnings	$	
Lowest 10% of Workers	14,727	or less
Average Worker	27,373	
Highest 10% of Workers	37,891	or more

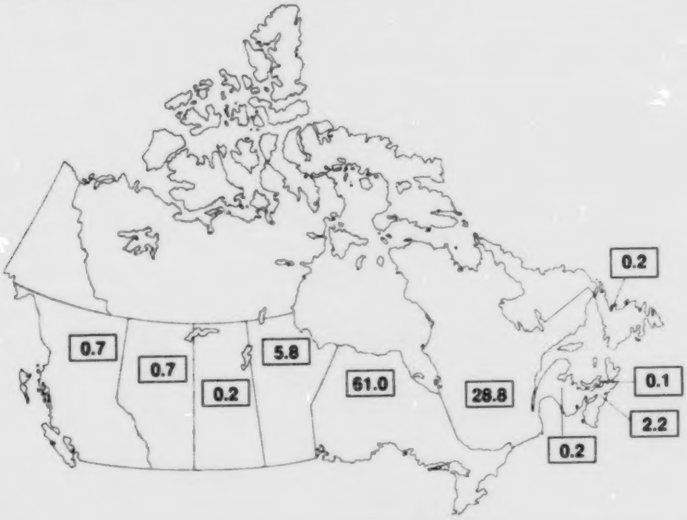
Source: 1986 Census

Aircraft Fabricating and Assembling Occupations

8515

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,442	0.6	3.1	5,302
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	90	10	31	58	11	98	2
	1986	89	11	13	72	15	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (94)
- Aircraft & Parts (88)
- Electrical Products (1)
- Machinery (1)

Transport & Communications & Utilities (4)
- Air Transport (3)

Trade (1)

Aircraft Fabricating and Assembling Occupations

8515

Job Environment

This classification includes such occupations as aircraft riggers, engine installers, propeller installers and wing assemblers. Their duties include fitting, bolting, riveting and adjusting manufactured parts and assembled components. Aircraft fabricators are usually employed in clean manufacturing plants. They are highly skilled in the use of special hand and power tools, jigs and fixtures.

Educational Background and Skills

The minimum level of education required in these occupations is secondary school graduation. Specific training is available either on the job or through a community college or vocational program that emphasizes aircraft manufacturing and repair or aeronautical technology.

Nature of Supply

The primary sources of supply to this occupation are the post-secondary and the secondary education systems. Minor sources of supply include immigrants and military personnel.

Although this occupation continues to be dominated by men, the number of women choosing this career has been increasing. Most individuals in this field work in Ontario and Quebec, where the aircraft manufacturing industry is concentrated.

Between 1981 and 1986 the proportion of workers under 25 decreased significantly (31% to 13%). A typical career lasts 30 to 35 years, with entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

The short-term employment outlook for aircraft fabricators, who work almost entirely in the aircraft and parts manufacturing industry, is optimistic. Steady growth in the demand for exports and domestic air transportation services will sustain long-term activity in the industry.

Current projections indicate employment will increase rapidly between 1989 and 1995. Over this period, 5,300 jobs will become available, of which 4,000 will be replacement opportunities while 1,300 will be newly created positions.

Labour market conditions, which have improved in the last few years, are quite favourable, and unemployment among aircraft fabricators is relatively low.

Employment in the aircraft and parts manufacturing industry is typified by boom-and-bust cycles; major contracts have a large impact on employment growth. Virtually all work in these occupations is full-time and is uninfluenced by seasonal factors.

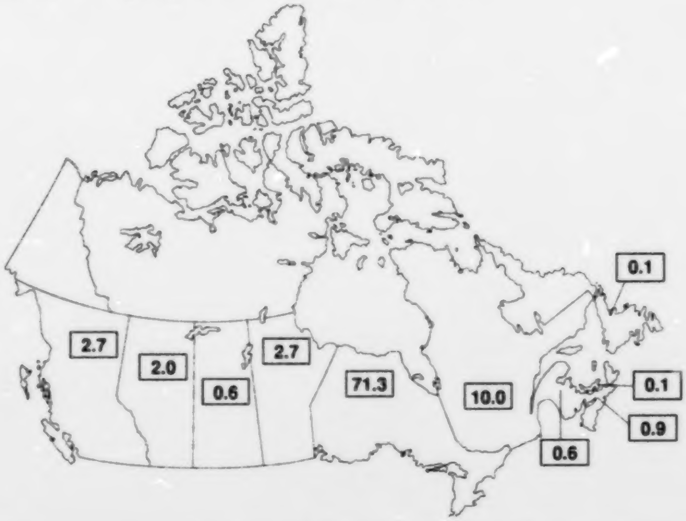
1985 Annual Earnings	$	
Lowest 10% of Workers	17,023	or less
Average Worker	26,962	
Highest 10% of Workers	37,272	or more

Source: 1986 Census

Electrical Equipment Fabrication and Assembly 8531

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	22,763	0.0	-1.1	9,544
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	54	46	25	65	10	95	5
	1986	57	43	17	72	11	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (91)
- Electrical Products (67)
- Machinery (9)
- Motor Vehicles & Trailers & Parts (4)

Trade (4)
- Wholesale (3)
- Retail (1)

Construction (2)

Electrical Equipment Fabrication and Assembly

8531

Job Environment

This group includes occupations concerned with assembling, testing, repairing and inspecting commercial, household and industrial appliances, equipment, and other electrical products. Employment is available with various large and small manufacturing companies within the electrical equipment manufacturing industry. Assemblers put together prefabricated parts on a progressive assembly line or at work benches. Assembly inspectors check in-process and completed production items for visual defects and proper electrical and mechanical connections. Assembly repairers perform minor repairs of items rejected from assembly lines.

Educational Background and Skills

Completion of some secondary school education is generally required to enter this occupation. Assemblers in the group with one to five years of experience may progress to assembly inspection, test, repair or set-up positions.

Nature of Supply

On-the-job training is usually provided to all new assemblers, permitting people with relatively little work experience to enter this occupation.

The proportion of men in this field increased from 54% in 1981 to 57% in 1986. Most of this work is in the manufacturing sector, and thus is heavily concentrated in Ontario and Quebec.

The age structure of this group roughly equals that of the all-occupation average.

Market Conditions and Job Prospects

Employment growth within this occupation was very strong during the early 1980s, but slowed considerably during the middle part of the decade. Employment levels are projected to decrease between 1989 and 1995. Approximately 9,500 jobs will become available during this period, but they will all result from the need to replace workers who leave the occupation due to death, retirement, or for other reasons.

Most of the work in this occupation is full-time and there is no seasonal variation.

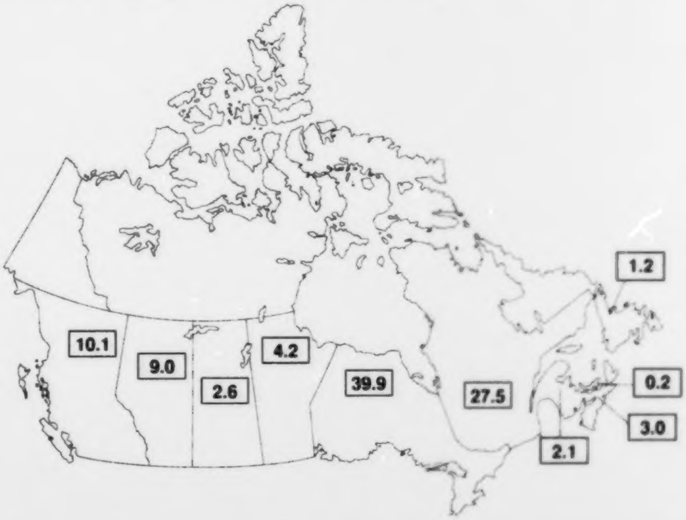
1985 Annual Earnings	$	
Lowest 10% of Workers	11,258	or less
Average Worker	20,500	
Highest 10% of Workers	31,272	or more

Source: 1986 Census

Electrical and Related Equipment Installing and Repairing Occupations 8533

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	48,810	2.9	2.6	34,186
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	18	71	11	95	5
	1986	98	2	12	76	12	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (32)
- Electrical Products (5)
- Primary Metals (4)
- Motor Vehicles & Trailers & Parts (4)

Trade (20)
- Retail (14)
- Wholesale (6)

Construction (18)

Electrical and Related Equipment Installing and Repairing Occupations 8533

Job Environment

This group includes a wide range of electrical and related equipment installing and repairing occupations such as aircraft and automobile electricians, refrigeration mechanics and major appliance repairers. Their responsibilities include installing, servicing, repairing and rebuilding electrical equipment. Electricians must be familiar with a wide range of diagnostic equipment such as ammeters, voltmeters and ohmmeters, and with repair equipment such as pliers, wirecutters, crimping tools and soldering tools. They often work from technical drawings, wiring diagrams or blueprints. The work environment may vary from a customer's home to a shop or factory, and may involve exposure to hazards that require the use of safety equipment.

Educational Background and Skills

High school or equivalent vocational school education is the best preparation for employment in this occupational area. Before becoming a journeyman, however, an individual must follow an apprenticeship program, which includes periods of formal training in industrial electricity, electrical assembly and repair and electronics. Apprenticeships last up to four years, depending on previous experience, courses completed and type of equipment or product serviced.

Nature of Supply

The major sources of supply to this occupation are graduates from the secondary school system and immigrants. Other sources of supply include graduates from the post-secondary education system and individuals leaving the military.

This occupational area remains overwhelmingly male. The proportion of workers under 25 decreased and the proportion in the 25-to-54 age category increased between 1981 and 1986. The average age has remained fairly constant at 38. A career normally lasts 30 years, with entrance generally occurring between the ages of 25 and 29.

Market Conditions and Job Prospects

Electrical equipment repairers work in various industries, particularly in the manufacturing, trade and construction sectors. Employment prospects for electrical equipment repairers are favourable in the short term, owing to strong demand for electrical machinery and equipment by industry and government. Current projections for the forecast period indicate a continuation of the above-average growth of the 1980s. Approximately 34,000 jobs will become available between 1989 and 1995, of which 26,000 will be replacement opportunities. In recent years the use of computers that control and monitor heating and cooling functions within buildings has increased. This will increase the demand for mechanics who are able to service and install such systems. Employment opportunities in this occupation tend to be moderately affected by economic conditions. Most of the work in this occupation is full-time and there is little seasonal variation.

1985 Annual Earnings	$	
Lowest 10% of Workers	15,398	or less
Average Worker	29,633	
Highest 10% of Workers	43,425	or more

Source: 1986 Census

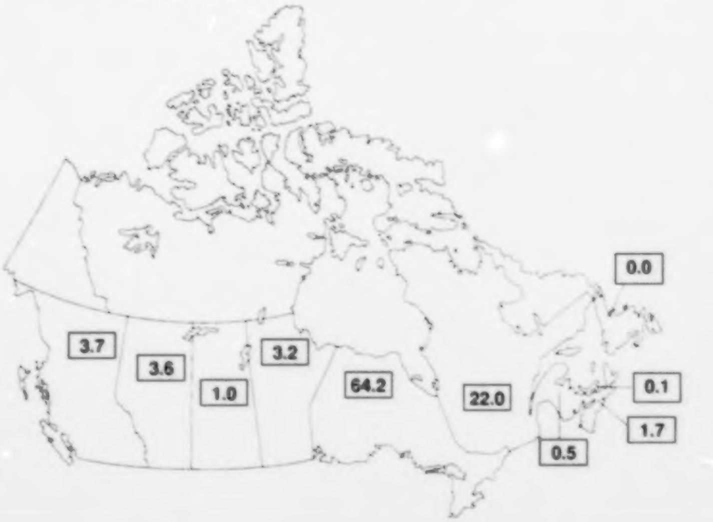
For further information, contact:

International Brotherhood of Electrical Workers
Suite 401, 45 Sheppard Ave. East
Willowdale, Ontario M2N 5Y1
(416) 226-5155

Electronic Equipment Fabrication and Assembly 8534

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	16,438	1.4	-1.0	6,997
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	33	67	30	63	7	93	7
	1986	38	62	20	72	8	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (87)
- Electrical Products (69)
- Machinery (9)
- Miscellaneous (6)

Trade (6)
- Wholesale (3)
- Retail (3)

Transport & Communications & Utilities (3)
- Telephone & Telegraph (2)

Electronic Equipment Fabrication and Assembly

8534

Job Environment

People in this group make and assemble electronic equipment, parts and components; they produce such equipment as radios, televisions, telephones, broadcasting equipment and other communications equipment. Their work involves installing and adjusting elements of electronic equipment in sub-assemblies and assemblies using a variety of hand and power tools. Automatic and semi-automatic machines are also used to fabricate electronic components.

Educational Background and Skills

The minimum educational requirement for this occupation is usually some secondary school education. A general understanding of basic electronics is an important asset.

Nature of Supply

This field is dominated by women, although their representation dropped from 67% in 1981 to 62% in 1986. The age profile of this group roughly mirrors that of the labour force as a whole.

Most of these jobs are in the manufacturing sector and thus are concentrated in Ontario (64%) and Quebec (22%).

Experience as an electronic assembler, fabricator, inspector or tester may be required for employment as a foreman/woman in this occupation.

Market Conditions and Job Prospects

Most of this work is full-time and there is little seasonal variation.

Growth within this occupation was very strong in the early 1980s, but slowed considerably towards the end of the decade. Between 1989 and 1995 employment levels are projected to decrease, but even with this contraction about 7,000 jobs will become available, in response to the need to replace workers who die, retire, or leave the occupation.

1985 Annual Earnings	$	
Lowest 10% of Workers	11,056	or less
Average Worker	19,907	
Highest 10% of Workers	30,295	or more

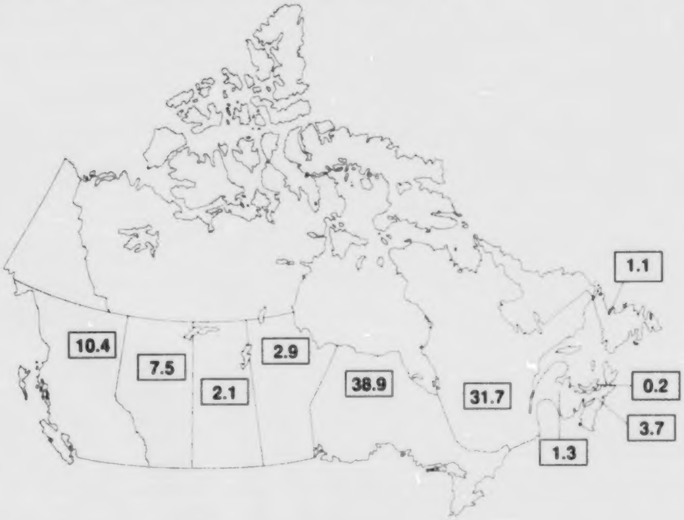
Source: 1986 Census

Electronic and Related Equipment Installing and Repairing Occupations

8535

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	20,648	5.5	3.7	16,603
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	92	8	23	71	6	95	5
	1986	92	8	18	77	5	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (24)
- Telephone & Telegraph (12)
- Radio & TV Broadcasting (9)
- Electric Power (2)

Services (21)
- Business (13)
- Education (3)
- Recreation (3)

Trade (21)
- Wholesale (12)
- Retail (9)

Electronic and Related Equipment Installing and Repairing Occupations

8535

Job Environment

This group includes such occupations as electronic instrument technicians, radio repairers, radar repairers and communication technicians. Electronic equipment installers and repairers work on a variety of electronic equipment, including radio and television transmitters, computing equipment, navigational aids, radar and various types of electronic recording equipment. In repair work they test electronic components and circuits to locate and replace faulty components and wiring. Work is usually indoors, at constantly changing sites, and often requires the use of safety equipment.

Educational Background and Skills

Employment in this occupation usually requires the completion of a two- or three-year community college program in electronics, supplemented by a period of on-the-job training under the supervision of an experienced electrician. An alternative to this is an apprenticeship program, which lasts up to four years and combines on-the-job training with courses at a community college or institute of technology.

Nature of Supply

The major sources of supply to this occupation are the post-secondary education system and apprenticeship programs. Minor sources include labour force re-entrants, immigrants and individuals leaving the military.

Most members of this occupational group are men, and employment is concentrated in Quebec and Ontario. The proportion of people in this group under 25 decreased between 1981 and 1986, while the proportion between 25 and 54 increased. The proportion over 54 is much lower than average. The average career spans 30 years, with entry generally taking place between the ages of 25 and 29.

Market Conditions and Job Prospects

Employment for electronic equipment repairers is scattered throughout the economy, with the transportation, communications, utilities and service sectors accounting for a large concentration. The growing use of computers in manufacturing and industry will ensure steady employment growth for this group. Labour market conditions for electronic repairers are currently favourable, with forecasts showing employment growth at more than double the national average. Over the next six years, approximately 16,000 jobs will become available in this field, of which 11,000 will be replacement opportunities.

Employment opportunities are moderately influenced by economic conditions, and employment patterns have been somewhat cyclical. There is some part-time work and no evident seasonal variation.

1985 Annual Earnings	$	
Lowest 10% of Workers	15,703	or less
Average Worker	29,225	
Highest 10% of Workers	42,111	or more

Source: 1986 Census

For further information, contact:

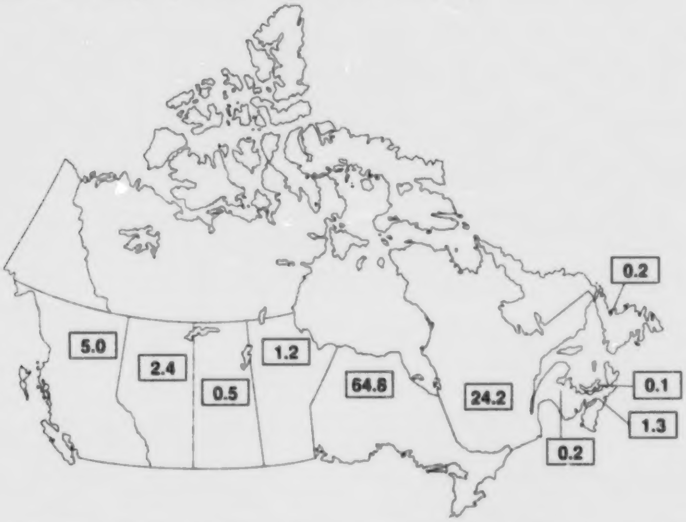
International Brotherhood of Electrical Workers
Suite 401, 45 Sheppard Ave. East
Willowdale, Ontario M2N 5Y1
(416) 226-5155

Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment

8536

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	9,812	0.8	0.1	4,978
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	63	37	21	66	13	96	4
	1986	63	37	16	72	12	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (78)
- Electrical (58)
- Machinery (13)
- Miscellaneous (2)

Transport & Communications & Utilities (7)
- Telephone & Telegraph (4)
- Electric Power (2)

Trade (5)
- Wholesale (5)

Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing and Repairing Electrical, Electronic and Related Equipment

8536

Job Environment

Battery inspector, electrical tester, household-appliance inspector and transmitter tester are typical occupations in this group. They inspect, test, grade, sample and regulate quality in the fabrication, assembly, installation and repair of electrical and electronic equipment and components. Inspectors in electrical products manufacturing are often exposed to a hazardous working environment requiring the use of safety equipment.

Educational Background and Skills

The minimum requirements for these occupations are some secondary school education and a basic understanding of electrical or electronic equipment is essential. Graduations from a community college program in an electronics-related area is recommended. On-the-job training lasting from six months to four years, depending on the equipment in question, is required in this field. Individuals usually become inspectors only after several years of related experience in assembly and fabrication occupations.

Nature of Supply

The primary source of supply to these occupations is the post-secondary education system, supplemented by immigrants, people returning to the labour force and secondary school graduates.

Most individuals in these occupations are men and most work in Ontario and Quebec. This field witnessed a decline in the proportion of those under 25 between 1981 and 1986 and a corresponding rise in those between 25 and 54. Individuals normally enter the occupation between the ages of 25 and 34 and pursue this career for about 25 to 30 years. The average age is 37.

Market Conditions and Job Prospects

Employment growth was strong throughout the 1970s and continued on an upward path during the early 1980s. Prospects for the projection period, however, are below average. Current projections indicate that employment will grow slowly between 1989 and 1995, with approximately 5,000 jobs becoming available. Almost all of these opportunities will be replacement openings, because a high proportion of employees in this occupation are in the 54-plus age group.

Economic conditions affect employment opportunities in this occupation, especially in the electrical products industry. Seasonal forces, however, exert little influence, and virtually all work is full-time.

1985 Annual Earnings	$	
Lowest 10% of Workers	14,424	or less
Average Worker	24,952	
Highest 10% of Workers	38,020	or more

Source: 1986 Census

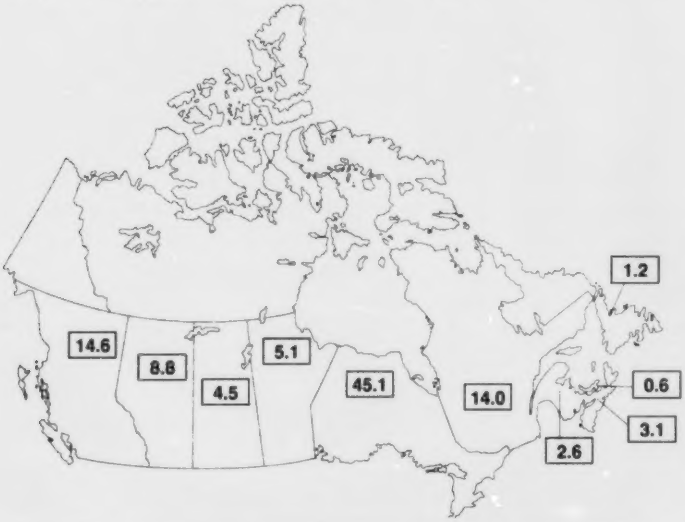
For further information, contact:

International Brotherhood of Electrical Workers
Suite 401, 45 Sheppard Ave. East
Willowdale, Ontario M2N 5Y1
(416) 226-5155

Radio and Television Repairers 8537

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	9,096	-0.8	-0.9	3,919
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	19	68	13	90	10
	1986	96	4	15	72	13	89	11
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (74)	**Transport & Communications & Utilities** (8)	**Manufacturing** (7)
- Retail (66)	- Radio & TV Broadcasting (5)	- Electrical Products (5)
- Wholesale (8)	- Telephone & Telegraph (2)	

Radio and Television Repairers

8537

Job Environment

Radio and television repairers (a group which includes sound-equipment servicers, radio electricians and television technicians) service and repair televisions, radios, stereos, tape recorders and related equipment. This involves testing and replacing electronic and solid-state components, such as electron tubes, resistors and capacitors, and diagnosing faulty equipment. Work is usually on the customer's premises or in a repair shop or factory.

Educational Background and Skills

Given the increasing complexity of the electronics field, the completion of a community college or institute of technology program in electronics is essential in this occupation, and is usually supplemented by a period of on-the-job training. An alternate route to this field is an apprenticeship program, which normally lasts between three and four years and includes periods of full-time attendance at a community college or institute of technology.

Nature of Supply

The major sources of supply to this occupation are the post-secondary education system and the apprenticeship program. Other sources of supply include people returning to the labour force, immigrants and the military.

Men continue to dominate this field, as women's representation has increased only marginally in recent years. The proportion of people under 25 in this group decreased between 1981 and 1986, while the number in the 25-to-54 age group increased correspondingly. The average age of 37 has not changed in recent years. A typical career spans approximately 15 years, normally starting between the ages of 20 and 24.

Market Conditions and Job Prospects

Approximately 3,900 jobs will become available in this field in the next six years, all of which will be replacement opportunities.

Based on the outlook for the retail trade industry, which employs two-thirds of all radio and television repairers, employment prospects in this occupation are good. Employment opportunities for radio and television repairers are, however, moderately susceptible to changing economic conditions. In 1986, 11% were employed on a part-time basis. Seasonal variability is not a factor in this occupation.

Despite the widespread surge in the use of radio and video equipment, the increased durability of these products, coupled with falling prices, have limited employment growth in this occupation.

1985 Annual Earnings	$	
Lowest 10% of Workers	12,085	or less
Average Worker	22,821	
Highest 10% of Workers	35,329	or more

Source: 1986 Census

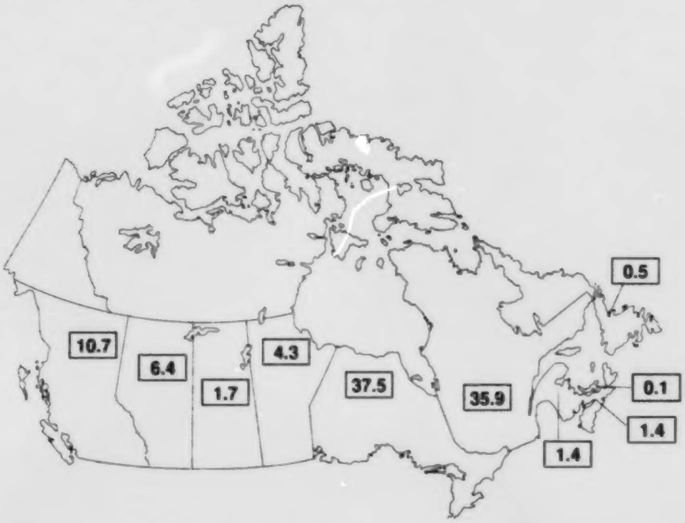
For further information, contact:

International Brotherhood of Electrical Workers
Suite 401, 45 Sheppard Ave. East
Willowdale, Ontario M2N 5Y1
(416) 226-5155

Cabinet and Wood Furniture Makers 8541

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%)		Number of Job Openings 1989 - 1995
		Actual 1981 - 1989	Projected 1989 - 1995	
This Occupation	29,141	1.5	2.7	12,994
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	89	11	32	58	10	90	10
	1986	88	12	28	63	9	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (77)
- Furniture & Fixtures (46)
- Wood (25)
- Metal Fabricating (2)

Construction (10)

Trade (10)
- Retail (7)
- Wholesale (3)

Cabinet and Wood Furniture Makers

8541

Job Environment

This group includes cabinet makers, bench carpenters and other wood furniture makers, repairers and assemblers. Using blueprints, cabinet makers construct and repair wooden articles, such as furniture, cabinets, office equipment, doors, window and door frames, and fixtures. In many instances, their artistic touch is as important as their woodworking skills. In the past, furniture was totally hand-made and cabinet making and furniture making were very labour-intensive, skilled trades. Today, as sophisticated machines and assembly-line techniques become more commonplace, less-skilled assemblers play a key role in furniture making. Work settings for this group include factories and custom shops where workers are exposed to noise, vibration and dust. A five-day work week of 35 to 40 hours is normal.

Educational Background and Skills

There are two ways of qualifying to become a cabinet maker. The traditional method is through an apprenticeship lasting three to four years and including a period of in-school training. The alternative is to complete a community college program in cabinet making or woodworking. Apprenticeship training is not required for assemblers.

Nature of Supply

The main sources of supply to this occupation are apprentices and community college graduates. Other sources of supply include labour force re-entrants and immigrants. Although most cabinet makers are men, the number of women in this occupation has increased recently. The majority of cabinet makers work in Quebec and Ontario.

Over the 1981-to-1986 period, the average age remained 34. During the same period, the proportion of cabinet makers between the ages of 25 and 54 increased. A cabinet maker's career normally spans 40 years, with entry occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Employment growth for cabinet and wood furniture makers was average over the 1981-to-1989 period. The relative instability of this occupation is due to the volatile nature of the demand for the output of this occupation because of its sensitivity to the business cycle and to interest rates.

Since the mid 1980s employment in the occupation has grown at a faster rate than average because of prolonged growth in the economy and in the construction industry. The apparent tightening in this market over the 1984-to-1988 period is reflected by falling unemployment.

In general, economic conditions between 1989 and 1995 will be such that employment in this occupation will not only grow faster than average but also faster than it did over the 1981-to-1989 period. However, throughout this period there should be significant volatility in response to changing economic conditions. The number of jobs created over this period should approximate 13,000 with slightly less than half arising from existing employees retiring, dying or leaving the occupation for other reasons.

1985 Annual Earnings	$	
Lowest 10% of Workers	9,999	or less
Average Worker	18,627	
Highest 10% of Workers	29,519	or more

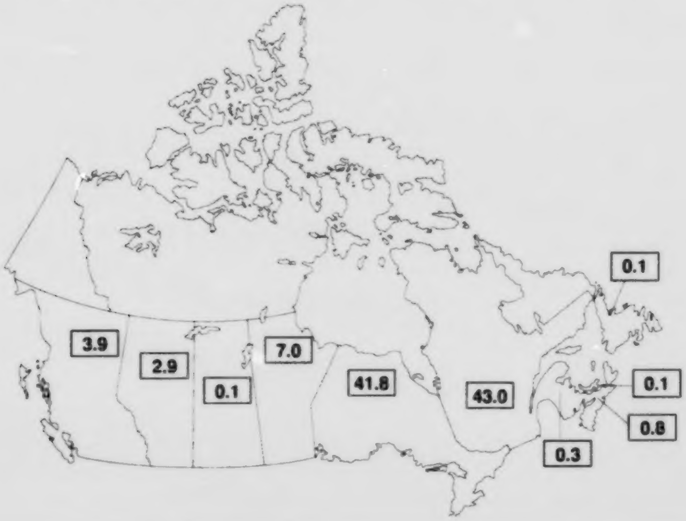
Source: 1986 Census

Pattern Making, Marking and Cutting Occupations: Textile, Fur and Leather Products

8551

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	8,681	-2.9	-2.2	5,382
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	63	37	25	61	15	91	9
	1986	62	39	17	68	15	91	9
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (90)
- Clothing & Knitting (53)
- Leather (18)
- Textiles (10)

Trade (7)
- Retail (5)
- Wholesale (3)

Services (3)
- Business (1)

Pattern Making, Marking and Cutting Occupations: Textile, Fur and Leather Products

8551

Job Environment

People in this occupational group are employed in making and modifying patterns, laying out, marking and cutting or punching fabric, fur and leather prior to assembly into such products as sails, garments, shoes or upholstery. Typical job titles include sail maker, cloth-cutting machine operator, glove cutter, button marker or embroidery pattern maker. Pattern makers draw master patterns for garments, footwear and upholstery, determining the number, shape and size of pattern parts and the required amount of material. They draw detailed outlines of the patterns on paper and add size, identification and style information. Increasingly, computers are being used in the pattern-making process. Pattern markings are then transferred to the appropriate material or fabric by pattern markers. Cutters, working on one or several layers of textile, leather or fur and following a pattern outline, cut parts for articles. Generally, although not always, this work is done by machine.

Typically, persons in these occupations work in a manufacturing environment and are thus exposed to machinery noise. According to the 1986 census, 53% are in clothing and knitting factories, 18% are involved in the manufacture of leather goods and 10% are employed in textile mills. Other employment opportunities exist in wholesale and retail trade and in the service sector.

Educational Background and Skills

The basic level of education required for employment as a pattern maker is secondary school graduation. Completion of a community college or vocational school program, normally lasting nine months to two years, is considered an asset. The prospective pattern maker may also enter an apprenticeship program to obtain the necessary skills. An apprenticeship takes from one to two years, unless the individual has previous related training or experience. Secondary school graduation is not generally required for cutters, although occupation-specific training, usually on the job and lasting three to six months, is the norm.

Nature of Supply

Most individuals currently employed in these occupations are men, although the proportion has fallen marginally in the past five years. Consistent with educational requirements, most people enter this field between the ages of 18 and 23 years, with movement out of the occupation beginning almost immediately. This low level of job attachment suggests an average employment of five years. Almost 85% of individuals employed in this field are located in Quebec or Ontario. The highly industrialized nature of the industry suggests that most employment opportunities are mostly available in large urban centres.

Market Conditions and Job Prospects

Between 1981 and 1986, employment for pattern makers, markers and cutters fell by more than 10% overall. Although the high rate of job decline is not expected to continue, it should last until at least 1995, and as many as 1,000 jobs could be lost during the next five years. The high rate at which people leave also suggests that as many as 5,400 job openings could become available during the same period.

Labour market conditions in the 1980s were less favourable than average for this occupational group. Unemployment has been quite high, primarily because the clothing and textile industries have been losing their market share to foreign suppliers. Attempts to remain competitive have included cutbacks in labour and modernization of plant facilities, which while boosting productivity, may further decrease employment opportunities. Economic conditions and cyclical factors have a great influence on employment in these occupations. Specifically for cutters, new laser technology in the cutting of cardboard shoe patterns will certainly affect required skills and may reduce the number of positions.

Earnings

Typical 1986-to-1987 hourly wage rates for cutters and markers in apparel manufacturing, courtesy of the Amalgamated Clothing and Textile Workers Union:

Fabric Cutter (Lead Hand)	$8.11
Fabric Cutter	7.64
Marker (Lead Hand)	6.70
Marker	6.57

1985 Annual Earnings	$	
Lowest 10% of Workers	10,016	or less
Average Worker	17,762	
Highest 10% of Workers	26,610	or more

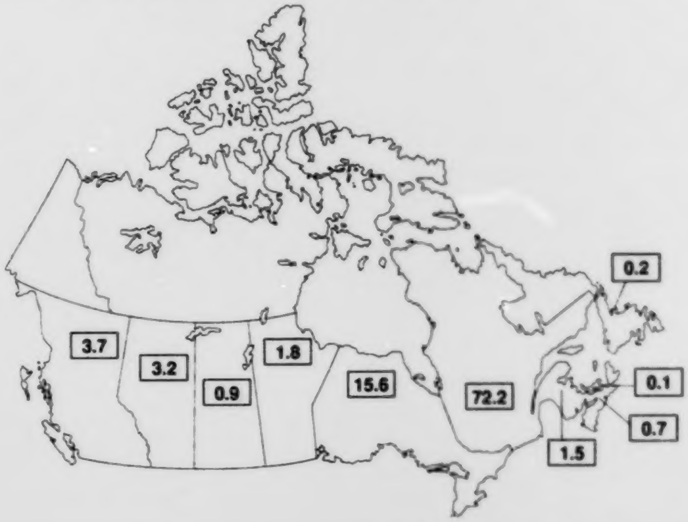
Source: 1986 Census

Tailors and Dressmakers

8553

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	30,219	9.7	-0.9	11,136
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	32	68	12	66	22	78	22
	1986	14	86	15	71	14	80	20
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (62)
- Clothing & Knitting (54)
- Textiles (3)
- Leather (2)

Trade (20)
- Retail (19)

Services (17)
- Personal (13)
- Hospital (1)

Tailors and Dressmakers

8553

Job Environment

This category includes such occupations as alterer, custom tailor and foundation garment fitter. Tailors and dressmakers make, alter and repair both made-to-measure and ready-to-wear clothing; this involves measuring, laying out, cutting, sewing, fitting, adjusting and finishing garments to suit the customer's measurements. Some tailors and dressmakers design garments, and many are self-employed or work in small custom shops. Small shops require the tailor or dressmaker to perform many or all functions, whereas larger shops may employ several people who perform limited, somewhat repetitive tasks. In some cases, a tailor or dressmaker may only do alterations.

The work environment in this occupation is usually a pleasant, well-lit room with a low noise level from sewing machines. The hours of work vary with the position.

Educational Background and Skills

Those wishing to become a tailor or dressmaker may do so by following a post-secondary program or by completing an apprenticeship. The former requires completion of a community college program in fashion design that emphasizes garment production or tailoring, and can vary from a 60-hour extension course at a community college to a three-year fashion design program at a college or university. The course normally includes a period of on-the-job training. The latter consists of a non-compulsory apprenticeship lasting three to four years. Apprentices must be at least 16 years of age and have a Grade 10 education. They may have to attend a community college or vocational school for certain periods during the apprenticeship.

Nature of Supply

Immigrants augment the supply for this occupation. Over the 1981-to-1986 period, the average age in this occupation decreased from 42 to 39 years, reflecting the increased number of tailors and dressmakers in the 20-to-35 age group. A typical career in this occupation spans 30 to 35 years, with entrance occurring between the ages of 20 and 24, and retirements starting at 60. The proportion of women in this occupation increased from 68% in 1981 to 86% in 1986. The vast majority of jobs in this area are in Quebec and, to a lesser extent, in Ontario.

Market Conditions and Job Prospects

After an outstanding performance in the 1980s, job opportunities in this field are expected to experience a major decline between 1989 and 1995. Approximately 11,000 jobs should become available in this period, exclusively to replace those who retire from the labour market or move to other occupations.

Tailors and dressmakers are concentrated in the manufacturing, trade and services sectors (particularly in the clothing and knitting industries, and in the retail trade). While in 1981 employment was concentrated in the trade sector, in 1986 the majority of tailors and dressmakers (62%) were working in the manufacturing industry.

Many manufacturers of men's clothing are now using computer-driven lasers to cut cloth for suits. This innovation may alter the skills required by tailors and dressmakers in factory settings.

Earnings

Earnings in this occupation are influenced by the type of work performed, the level of experience and the type of employer of each tailor or dressmaker. Factory workers are paid on a piece-work basis or, if they are unionized, according to salaries negotiated through collective bargaining agreements.

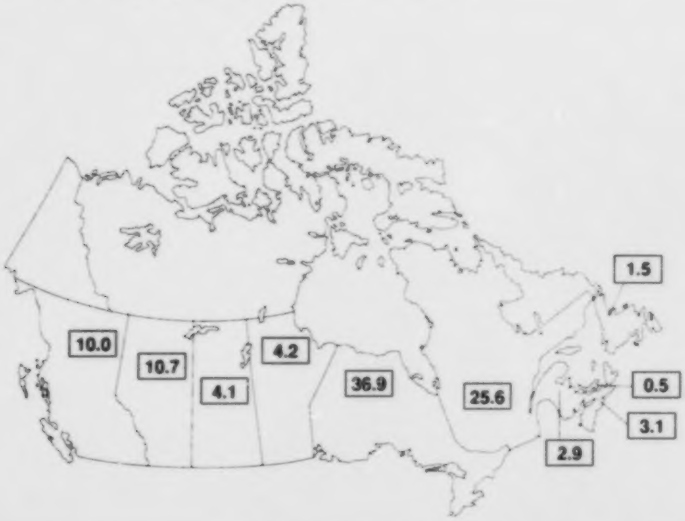
1985 Annual Earnings	$	
Lowest 10% of Workers	6,560	or less
Average Worker	13,322	
Highest 10% of Workers	21,886	or more

Source: 1986 Census

Motor Vehicle Mechanics and Body Repairers 8581

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	153,716	0.8	0.6	48,696
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	31	61	8	93	7
	1986	99	1	24	68	8	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (78)
- Retail (71)
- Wholesale (7)

Transport & Communications & Utilities (9)
- Miscellaneous Transport (6)
- Urban Transit (2)

Manufacturing (6)
- Motor Vehicles & Trailers & Parts (3)

Motor Vehicle Mechanics and Body Repairers 8581

Job Environment

This occupational group consists of motor vehicle mechanics, truck-trailer repairers, snowmobile repairers, mechanical unit repairers and engine repairers. They work for car dealerships, independent garages or specialty services, repairing and servicing gasoline- or diesel-powered motor vehicles. Using both common and specialized tools and equipment, they test, diagnose, disassemble, replace parts and assemblies, tune, adjust and make body repairs. The work is indoors, where exposure to noise, vibration, liquids, fumes and odours is controlled by safety regulations.

Educational Background and Skills

The increasing complexity of motor vehicles now requires motor vehicle mechanics and technicians to be better trained and to keep abreast of new developments in the field. In all provinces except Quebec, entry into the occupation occurs through an apprenticeship program which lasts four to five years and includes a period of vocational school training. Apprentices must be 16 and have completed Grade 9 or Grade 10 (depending on the province) or the equivalent. In some provinces, apprentices may apply credits from mechanical engineering or auto mechanics vocational programs to their apprenticeship. Future mechanics should have a good grasp of reading and writing, a basic understanding of electronics, and good hearing, eyesight and dexterity.

Nature of Supply

The majority of workers in this field are secondary school or vocational school graduates. The field offers the possibility of moving into positions such as supervisor, service representative, service manager, technical sales representative or specialized mechanic.

Almost all mechanics are men, and this has not changed in recent years. The proportion of younger workers (15-to-24 years) decreased between 1981 and 1986, and this was matched by an increase in the proportion of workers aged between 25 and 54. The geographical distribution of workers in this group is similar to that of the labour force in general.

Market Conditions and Job Prospects

Three-quarters of motor vehicle mechanics and technicians are employed in the trade sector, the majority of whom are concentrated in retail trade. Short-term employment prospects in retail trade will be fair if favourable interest rates and growing incomes sustain consumer spending. Over the next six years, approximately 48,000 jobs will become available, most of which will result from attrition.

Employment is moderately affected by economic conditions and seasonal factors. A modest unemployment peak occurs during the winter.

The demand for skilled mechanics continues to grow as the vehicle population in Canada increases. Even when sales of new vehicles (which require less maintenance and repair) drop off, the volume of service work remains and may even increase, because older vehicles are kept running longer. Skilled auto mechanics are also in demand in the field of fleet maintenance.

Because of new developments in engines, transmissions and suspension systems, and the growing use of electronic components, the mechanic's job is changing into that of a technician, with emphasis on vehicle diagnosis. This will increase the demand for automotive mechanics with training in propane and electronic fuel injection engines, on-board computers and electronics.

1985 Annual Earnings	$	
Lowest 10% of Workers	11,460	or less
Average Worker	22,757	
Highest 10% of Workers	34,610	or more

Source: 1986 Census

For further information, contact:

Canadian Automotive Repair & Service
Council (CARS)
Suite 310, 440 Laurier Avenue West
Ottawa, Ontario K1R 7X6
(613) 782-2402

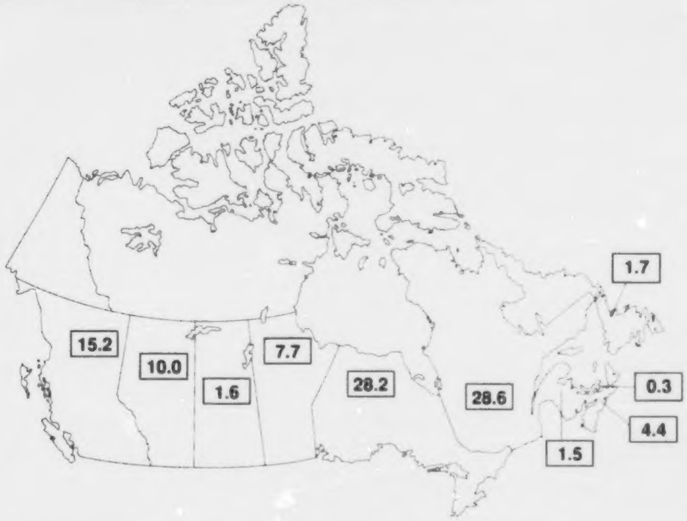
Automotive Industries Association
of Canada
1272 Wellington Street
Ottawa, Ontario K1Y 3A7
(613) 728-5821

Aircraft Mechanics and Repairers

8582

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%)		Number of Job Openings 1989 - 1995
		Actual 1981 - 1989	Projected 1989 - 1995	
This Occupation	9,973	-1.1	1.0	3,859
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	23	66	11	97	3
	1986	98	2	15	76	10	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (65)
- Air Transport (64)

Manufacturing (20)
- Aircraft & Parts (19)

Public Administration (10)
- Federal (10)

Aircraft Mechanics and Repairers

8582

Job Environment

Aircraft mechanics perform scheduled maintenance and repair on aircraft mechanical engines, systems and equipment, checking off a list of functions before each flight in accordance with air transport regulations. An aircraft maintenance engineer, licensed by Transport Canada certifies that the aircraft, engines and components are fit for flight. In large companies the mechanic often has to check the work done by specialists. For the most part these operations are carried out in hangars but occasionally adjustments may have to be done outdoors, especially in the Canadian north. Workers are exposed to noise, vibration, liquids, fumes and other hazards requiring the use of safety equipment and clothing. Normally the work week is 40 hours, although overtime is often necessary and shift work is common. When working on rotary-wing aircraft, a helicopter mechanic should be willing to travel anywhere, sometimes on short notice and often for months at a time.

Educational Background and Skills

In the past, most licensed mechanics received their basic training from the armed forces, with flying clubs or with individual companies. Today, most Canadian firms hire individuals who have taken approved Department of Transport courses in aircraft mechanics lasting between two and three years, from a community college or institute of technology. Graduates, after working under the supervision of a licenced aircraft maintenance engineer and performing such mandatory tasks as defined by Transport Canada, may be permitted to write examinations for their aircraft maintenance engineer's license. Desirable qualities for an aircraft mechanic include above-average mechanical aptitude, strong interest in electronics, attentiveness to the smallest detail, good eyesight and hearing. Mechanics must also be able to write and interpret instructions and read blueprints accurately. Qualified workers may advance to supervisory positions.

Nature of Supply

The main source of supply is graduates from the formal education system. Former military personnel and immigrants no longer constitute an important supply of workers. Aircraft mechanics, transportation technologies and mechanical engineering technologies are the major fields of study at the college level leading to this occupation.

Almost all aircraft mechanics are men. The proportion of people under 25 years of age decreased and the proportion in the 25-to-54 age category increased between 1981 and 1986. Most mechanics work in Quebec (29%), Ontario (28%) and British Columbia (15%).

Market Conditions and Job Prospects

Employment growth is projected to be below that expected in the rest of the economy between 1989 and 1995, matching the trends of the early 1980s, which were also slower than average. A total of 3,800 job openings will become available over the projection period. Because of the number of mechanics in the over-54 age group, replacements should outnumber new job openings. However, these estimates may be conservative, according to predictions by experts in the International Civil Aviation Organization and many industry analysts, who expect rapid expansion of air traffic. In Canada, some industry representatives expect the demand to be stronger than in the past.

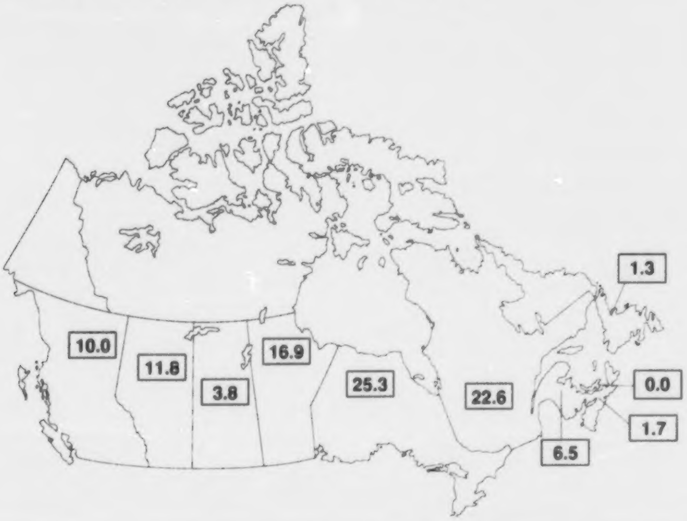
1985 Annual Earnings	$	
Lowest 10% of Workers	18,268	or less
Average Worker	30,024	
Highest 10% of Workers	41,161	or more

Source: 1986 Census

Rail Transport Equipment Mechanics and Repairers 8583

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,979	-6.3	-1.5	2,397
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	21	61	18	98	2
	1986	99	1	8	77	15	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (91)
- Rail Transport (85)
- Urban Transit (5)

Manufacturing (6)
- Railroad Rolling Stock (5)

Mining (1)

Rail Transport Equipment Mechanics and Repairers 8583

Job Environment

Brake mechanics, compressor repairers and switch repairers service and repair railway rolling stock and related equipment. Railway mechanics test, adjust and repair items such as compressors, valves, bearings, traction motors, brakes, wheels, couplers and other mechanical assemblies on trains, railway rolling stock and related equipment. A five-day work week of 35 to 40 hours is normal. Shift work and overtime may be part of the job.

Educational Background and Skills

Training for this occupation is generally through an apprenticeship program or on-the-job training provided by the employer. Grade 10 is required to enter the training program, but employers usually prefer applicants who have completed secondary school. The length of the apprenticeship depends on the specialty (railway car repair, air-valve repair), varying from six months to four years. New skills, such as the ability to read and create the printouts and diagrams required in electrical/electronic technologies, are increasingly necessary.

Nature of Supply

The primary source of supply to this field is labour force re-entrants meeting the basic requirements. Some of these may have previous vocational training in mechanical engineering technologies. Occupations in this category provide opportunities for advancement into positions requiring more specialized skills and additional responsibilities.

The proportion of workers under 25 decreased and the proportion in the 25-to-54 age category increased between 1981 and 1986. In general, persons enter the occupation between the ages of 20 and 29 and begin to leave between 60 and 64, for a career length of 35 years. In 1986, 99% of mechanics were men. Most are employed in either Ontario, Quebec or Manitoba.

Market Conditions and Job Prospects

The employment of rail mechanics is, not surprisingly, concentrated in the rail transport industry. Short-term employment opportunities for rail mechanics are marginal, based on the outlook for the rail transport sector. Prevailing economic conditions and fluctuations in the business cycle strongly affect employment in this occupation.

Employment in this occupation decreased from 10,885 in 1981 to 8,335 in 1986. Current projections indicate employment will continue to decline over the next six years.

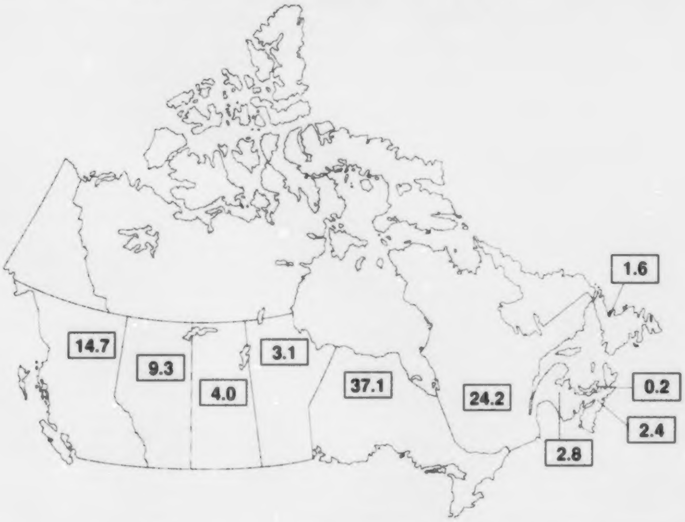
1985 Annual Earnings	$	
Lowest 10% of Workers	21,264	or less
Average Worker	27,802	
Highest 10% of Workers	35,409	or more

Source: 1986 Census

Industrial, Farm and Construction Machinery Mechanics and Repairers 8584

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	99,367	-0.4	1.0	35,547
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	19	69	12	96	4
	1986	99	1	9	79	12	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (48)
- Primary Metals (7)
- Pulp & Paper (6)
- Wood (5)

Trade (16)
- Wholesale (14)
- Retail (2)

Mining (12)
- Metals (5)
- Non-Metal (2)
- Coal (2)

Industrial, Farm and Construction Machinery Mechanics and Repairers 8584

Job Environment

The most important occupation in this group is the millwright, who installs and repairs industrial equipment on the plant floor. Following blueprints and using precision tools, millwrights, assemble, repair and maintain machinery operated by hydraulic, pneumatic, electronic or other means. Millwrights may be employed in construction where the work is on a project-by-project basis, or in plants where employment involved with maintenance and repair is on a continuous basis. Both of these environments subject millwrights to various hazards including noise.

Other occupations within this group include construction-equipment, farm-machinery and sewing-machine mechanics.

For industrial mechanics not engaged in contract construction, the work week is normally 35 to 40 hours long, with occasional overtime. Shift work is common.

Educational Background and Skills

Entry to the millwright trade and to most other occupations in this group requires an apprenticeship of between three and five years (depending on the province), combining on-the-job with formal, theoretical training. Grade 10 is usually the minimum qualification and in some provinces, certification is compulsory. Good interpersonal skills, a mechanical aptitude, dexterity and patience are desirable attributes for these workers.

Nature of Supply

More than 99% of the work force in this occupational group is male. In recent years, most young people entering these trades have done so in their early-to-mid 20s, with the result that a smaller proportion of this workforce as a whole consists of younger workers. In 1986, 12% of industrial mechanics were aged 55 years or older, about average for all occupations. Many people in this field stay in their particular trade throughout their career. Immigration has been a significant source of industrial mechanics in past years, although the inflow has been fairly responsive to labour market needs.

Market Conditions and Job Prospects

Over all industries, the employment of industrial mechanics is projected to show moderate growth over the 1989-to-1995 period. The need for construction millwrights should grow more rapidly due to the expected high level of investment in manufacturing facilities in Central Canada during the early 1990s. Following this, industrial expansion is projected to shift towards expansion of resource extraction capacity, which will continue to provide a healthy employment base for millwrights. Retirement and career changes will provide additional job openings.

Because construction is sensitive to seasonal declines and may suffer during recessions, employment of millwrights is also subject to fluctuation. Employment of other industrial mechanics often shows less variation.

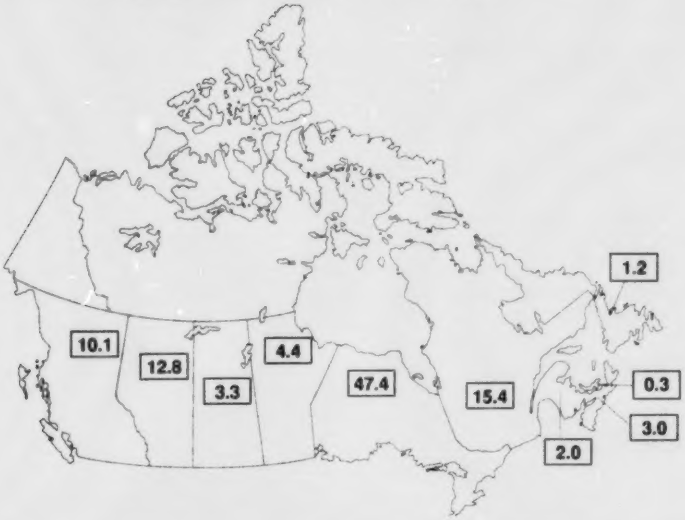
1985 Annual Earnings	$	
Lowest 10% of Workers	17,798	or less
Average Worker	31,246	
Highest 10% of Workers	44,924	or more

Source: 1986 Census

Business and Commercial Machine Mechanics and Repairers 8585

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	11,511	1.6	1.4	6,642
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	24	70	6	96	4
	1986	97	3	19	75	6	94	6
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (43)
- Wholesale (40)
- Retail (2)

Services (24)
- Business (14)
- Miscellaneous (7)
- Education (2)

Manufacturing (23)
- Machinery (14)
- Electrical Products (2)
- Miscellaneous (1)

Business and Commercial Machine Mechanics and Repairers 8585

Job Environment

This category includes service technicians for office equipment, computers, audio-stereo, audio-video equipment and televisions.

These technicians install, maintain and repair household and business electronic equipment. They may be required to inspect and test equipment using such instruments as circuit testers and oscilloscopes; diagnose and locate circuit faults; and use various hand tools to adjust or replace equipment according to manuals and schematics. They also must consult service orders and meet with customers to determine the type of work to be performed. They are employed by electronic service establishments, retail and wholesale distributors, and within service departments of electronic manufacturing companies.

Educational Background and Skills

A two-year community college program in electronics, a similar program in electronic servicing and repair, or a provincially regulated apprenticeship program in electronic servicing and repair is usually required for electronic equipment service technicians. Previous experience is not required.

Employers usually train new recruits in the use of machines specific to their tasks. Good manual dexterity, good vision and an ability to understand mechanical processes are desirable characteristics.

Nature of Supply

Students graduating from vocational schools, community colleges and private technical institutes in electrical/electronic engineering technologies and mechanical engineering technologies are an important source of supply to this field. Opportunities for advancement exist for those willing to upgrade their skills or wishing to become sales representatives or managers. It is also possible to start one's own business in this area.

Men represented 97% of people in this group in 1986. Neither the average age (34) nor the age structure has changed since 1971. People in this field enter these occupations in their early twenties and start to leave early at around the age of 30.

Market Conditions and Job Prospects

Employment opportunities for business machine mechanics, who are mainly employed in the trade, manufacturing and services sectors, are average in the short term. Employment growth was modest in the 1970s and stagnant in the early 1980s. Current projections suggest that in the forecast period, employment will increase at a rate marginally lower than the average expected for all occupations. About 6,600 jobs will become available between 1989 and 1995, most of which will be replacement openings.

Despite slow employment growth, business machine mechanics fared well in the labour market throughout the 1980s. Unemployment rates for this occupational group have been consistently lower than for the labour force at large.

Earnings

Salaries for office machine servicers depend on the organizations for which they work and on the type of machine they service. Since those employed by independent service organizations repair and service a variety of machines, their earnings tend to be higher than those of repairers employed by manufacturers or distributors of a particular brand of equipment.

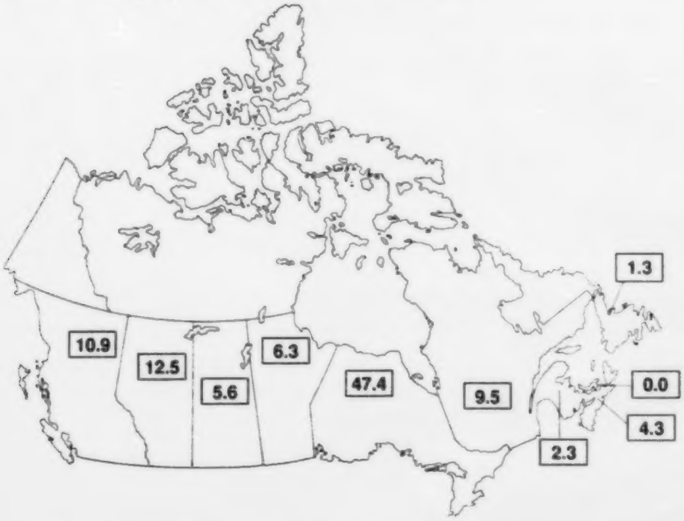
1985 Annual Earnings	$	
Lowest 10% of Workers	14,984	or less
Average Worker	25,868	
Highest 10% of Workers	37,939	or more

Source: 1986 Census

Watch and Clock Repairers 8587

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	1,397	-5.0	-3.5	281
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	92	8	15	57	28	90	10
	1986	92	8	8	56	36	86	14
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (58)
- Retail (49)
- Wholesale (9)

Transport & Communications & Utilities (21)
- Electric Power (10)
- Gas Distribution (5)
- Water & Other Utilities (4)

Manufacturing (10)
- Miscellaneous (5)

Watch and Clock Repairers

8587

Job Environment

Typical occupations in this field are clock repairers, speedometer repairers, meter mechanics and watchmakers. In each of these jobs the repairer disassembles, cleans, services and reassembles finely machined and delicate parts. A watch repairer reconditions, adjusts, repairs and oils timepieces. A five-day work week of 35 to 40 hours is normal.

Educational Background and Skills

Compulsory apprenticeship is necessary in Ontario (three years), where watchmaking is a certified trade requiring a provincial license. Most watchmaking schools in Canada require at least Grade 10 for admission. Students may also take a course in horology at a trade school or a college. The amount and quality of training obtained in a given watchmaking course will have an important effect on the wages a person may command as a watchmaker. Important qualities in these occupations are manual dexterity, precision, attention to detail and a mechanical aptitude.

Nature of Supply

This field is still dominated by men, the proportion of women having stabilized at less than 10%. The average age (46) is markedly higher than that of the labour force as a whole, and the number of watch and clock repairers aged 55-plus is also high. Opportunities exist for promotion into positions such as head watchmaker, specialist watchmaker or self-employed watchmaker.

Market Conditions and Job Prospects

Current projections for the period 1989-to-1995 indicate that employment in these occupations will decline to less than half the 1981 level. Job opportunities will come solely from openings created by individuals leaving the profession, and consequently unemployment may rise from its present low level.

Watch repairers work mainly in the trade sector and, to a lesser extent, in the utilities and manufacturing sectors. Long-term prospects for this occupation are moderately affected by changing economic conditions. Dependable, electronically driven timepieces have become cheaper to replace than to repair, and thus employment potential for this group has decreased. The incidence of part-time work increased from 10% in 1981 to 14% in 1986 but remains below the average level for all occupations. Work in these occupations is seasonably stable.

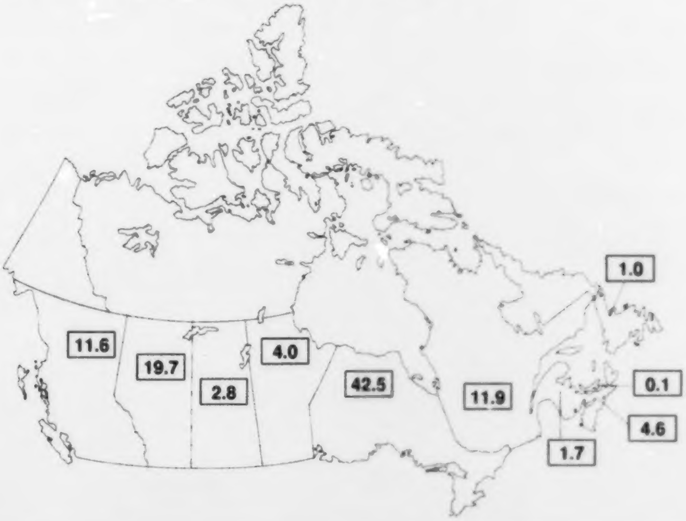
1985 Annual Earnings	$	
Lowest 10% of Workers	13,552	or less
Average Worker	25,085	
Highest 10% of Workers	37,203	or more

Source: 1986 Census

Precision Instrument Mechanics and Repairers 8588

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,794	0.6	2.2	1,986
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	95	4	18	73	10	98	2
	1986	98	3	12	79	9	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (40)
- Miscellaneous (7)
- Chemicals & Chemical Products (7)
- Pulp & Paper (6)

Trade (22)
- Wholesale (20)
- Retail (3)

Services (14)
- Business (5)
- Hospital (3)
- Education (3)

Precision Instrument Mechanics and Repairers

8588

Job Environment

This occupation includes aircraft-instrument mechanics, camera repairers, gyroscopic-instrument mechanics and surgical-instrument repairers. These people repair, overhaul, and calibrate various precision devices used to measure and record such characteristics as temperature and density in the control or automation of industrial processes. Their work involves installing instruments in control panels and aircraft and connecting them to hydraulic, pneumatic and electrical lines; calibrating instruments for accuracy; inspecting and testing instruments to isolate faults; and disassembling, cleaning, replacing parts and reassembling instruments. Most instrument establishments are clean, well-lit and often air-conditioned. However, technicians who service instruments that control manufacturing processes may be exposed to noisy, dusty or warm conditions. A five-day work week of 35 to 40 hours is normal. Some shift work and overtime, including evenings and weekends, may be necessary. Workers in these occupations are employed in pulp and paper processing; nuclear and hydro power generating plants; mining, petrochemical and natural gas industries; industrial instrument manufacturing and servicing establishments; aircraft maintenance, repair, overhaul or manufacturing; electrical utilities, communications and manufacturing companies serving a wide range of manufacturing, processing, and transportation industries as well as government; and product-specialty repair shop and service establishments.

Educational Background and Skills

To become a precision instrument mechanic and repairer, individuals may follow an apprenticeship program lasting four or five years and consisting of on-the-job training combined with formal schooling. A minimum of Grade 10 is required to enter this apprenticeship. In provinces where such a program does not exist, secondary school graduation is necessary. Technicians and mechanics in this occupation must have an extensive knowledge of the physical sciences as well as some familiarity with the principles of electrical, electronic and mechanical engineering. With the advent of computer technology, instrument mechanics have also had to familiarize themselves with digital technology in addition to analog technology. Some firms require a college diploma. Employers provide training to familiarize new employees with the firm's products and instruments. Trade certification is voluntary in all provinces and territories except for Ontario and Quebec, where no regulated apprenticeship program is available. Interprovincial trade certification (Red Seal) allows certified people to move between provinces.

Nature of Supply

Secondary school graduates entering the apprenticeship program and graduates of vocational schools, private technical institutes and community colleges are the primary sources of supply. Community college graduates who have worked in this occupation for two years after graduation have qualifications in instrumentation and in electrical and electronic technologies. Because of the speed with new developments in this field are occurring, opportunities are plentiful for mechanics interested in moving up to positions with more responsibility.

Most precision instrument mechanics are men, a situation that has not changed significantly since the last projection period. Most workers enter these occupations between 20 and 27 and start to leave at 30; the average age is 36. In 1986, about 43% worked in Ontario.

Market Conditions and Job Prospects

Employment is concentrated in the manufacturing sector and, to a lesser degree, the trade and services sectors. Between 1981 and 1986 however, the proportion of individuals working in the trade sector increased by 4%. Based on the outlook in these areas, employment opportunities are favourable. Prospects are moderately affected by economic conditions and not at all by seasonal factors. Current unemployment rates are about average.

Future growth is projected to be better than the average for all occupations. Approximately 2,000 jobs will become available in the years leading to 1995, of which one in three will be new jobs and the remainder replacements for individuals leaving or retiring.

1985 Annual Earnings	$	
Lowest 10% of Workers	19,531	or less
Average Worker	31,933	
Highest 10% of Workers	43,555	or more

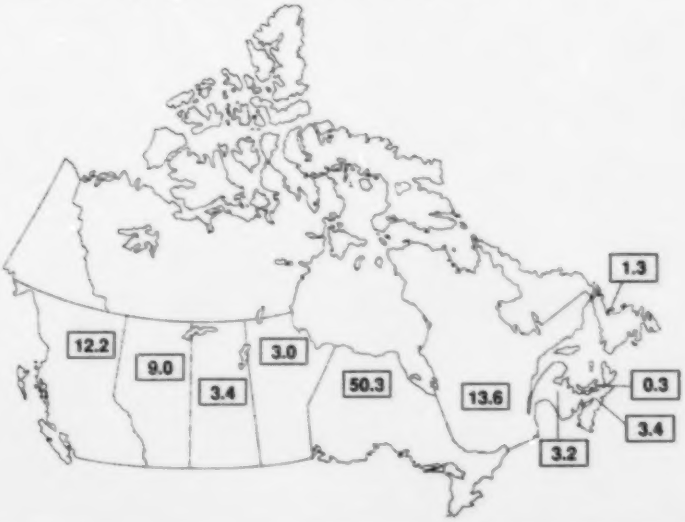
Source: 1986 Census

Other Mechanics and Repairers

8589

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	19,820	-0.2	-0.1	9,234
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	26	61	13	88	12
	1986	97	3	22	66	12	88	12
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Trade (33)
- Retail (22)
- Wholesale (11)

Manufacturing (26)
- Food & Beverages (4)
- Metal Fabricating (3)
- Motor Vehicles & Trailers & Parts (3)

Services (23)
- Miscellaneous (15)
- Recreation (4)
- Education (1)

Other Mechanics and Repairers

8589

Job Environment

This group comprises miscellaneous repairers and servicers not classified elsewhere. Occupations in this category include oilers and greasers of heavy equipment and machinery, crane greasers, gas pump servicers, car oilers, tire changers, engine oilers, vending-machine servicers, fuel-injection servicers, locksmiths, gunsmiths, and mechanics repairing such small gasoline-powered motors as lawn mowers, snowblowers, chain saws, portable generators, pumps and furnaces. A five-day work week of 35 to 40 hours is normal, although being on call is usually part of the job, especially for home-heating furnace repairers. Travel from one repair job to another is often necessary.

Educational Background and Skills

These occupations require a wide range of education, training and experience. For some occupations in this group apprenticeship programs are provided, lasting from two to four years depending on the specialization, the province, and previous training and experience. For example, mechanics repairing small gasoline-powered lawn mowers, snowblowers and chain saws and those who service and install gas appliances have usually undergone an apprenticeship of several years. However, oilers and greasers of heavy equipment and machinery or vending-machine servicers usually require only short periods of on-the-job training.

Nature of Supply

In 1986, men accounted for 97% of this category, leaving about the same percentage of women as in 1981. In the period between the 1981 and the 1986 census, the proportion of workers under 25 decreased, the size of the 24-to-54 age group increased, and the average age rose to 36. Generally, persons enter this occupation between the ages of 20 and 24 and begin to leave first in their 30s and later in their 50s.

Market Conditions and Job Prospects

Present projections indicate a decline in employment opportunities leading up to 1995. After a marginal increase in new jobs between 1984 and 1989, the demand for workers in this category is expected to decline. Job openings will be replacements for employees leaving these occupations or retiring.

Workers in this category are employed in the trade (33%), manufacturing (26%) and services (23%) sectors. Based on the outlook for these industries, employment for this group appears bleak throughout the projection period. About 12% of workers in 1986 were working part-time.

Unemployment for these workers is only slightly better than the overall average. However, the decline expected over the projection period will likely increase the number of people in this field who are unemployed.

1985 Annual Earnings	$	
Lowest 10% of Workers	12,820	or less
Average Worker	25,953	
Highest 10% of Workers	39,530	or more

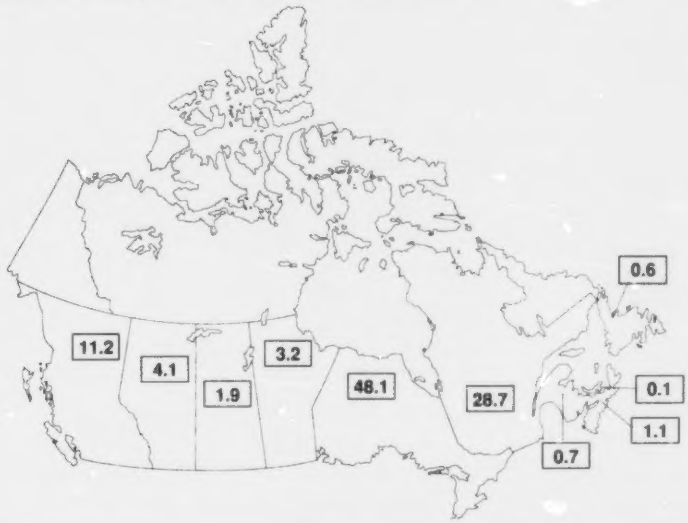
Source: 1986 Census

Jewellery and Silverware Fabricating, Assembling and Repairing Occupations

8591

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	5,633	1.3	1.5	2,259
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	67	33	21	68	11	89	11
	1986	66	34	19	70	11	85	15
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (55)
- Miscellaneous (54)

Trade (43)
- Retail (40)
- Wholesale (3)

Services (1)

Jewellery and Silverware Fabricating, Assembling and Repairing Occupations

8591

Job Environment

Diamond cutter, embosser, gemologist and silversmith are typical occupations in this group. Jewellers make and repair precious and semi-precious metal jewellery, by cutting, filing, soldering, grinding and polishing. Some specialize as repairers, engravers, gem and diamond setters, designers, enamelists or sample makers. Others reshape and restyle old jewellery following designs or instructions, or create jewellery designs, making metal models for casting workers. The variation in jewellers' occupations is a reflection of people's tastes and desires for a variety of decorative articles. Jewellers work in retail stores, in trade shops operated by wholesalers or in jewellery factories.

Educational Background and Skills

The route to becoming a jeweller is through either formal training or voluntary apprenticeship program. Some colleges, technical and trade schools in Canada as well as the Canadian Jewellers' Association offer courses in jewellery design, manufacture and repair. A jewellery manufacture and repair apprenticeship program, offered in British Columbia, may be required for employment in some establishments. Work experience in jewellery fabrication, assembly or repair may also be required.

Nature of Supply

Apprenticeships and the post-secondary education system are the primary sources of supply to this occupation, although immigrants and labour force re-entrants add to this.

Most jewellers are men, but the number of women has been increasing. The majority of jewellers work in Ontario and Quebec.

The average age (36) has remained relatively stable since the 1970s. A jeweller's career typically spans 35 years, starting when the jeweller is between the ages of 20 and 24.

Market Conditions and Job Prospects

At the time of the 1986 census, the proportion of individuals working in the manufacturing industry was 55%, down from 61% in 1981, and 43% of workers were in the trade industry, an increase of 6% over 1981. In the next five years, approximately 2,300 job openings are anticipated, with almost one in every four created by expanding demand. The rest will be positions vacated by existing personnel.

In the period leading up to 1995, employment should grow at the same rate as that for all occupations. After peaking in 1984 unemployment has declined in recent years, although it remains at a level above the average for all occupations.

Approximately 15% of individuals in this field worked part-time in 1986.

While employment of jewellery fabricators has been susceptible to fluctuating business conditions, seasonal forces have little influence.

1985 Annual Earnings	$	
Lowest 10% of Workers	8,609	or less
Average Worker	17,983	
Highest 10% of Workers	29,438	or more

Source: 1986 Census

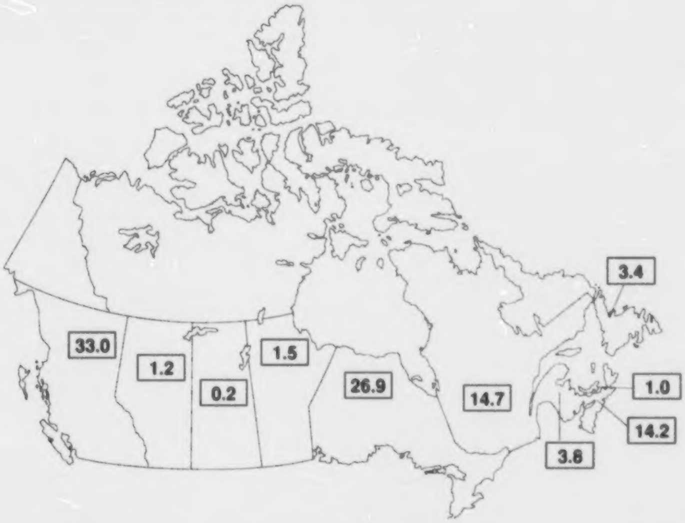
For further information, contact:

Canadian Jewellers Institute
Suite 1203, 20 Eglinton Avenue West
Toronto, Ontario M4R 1K8
(416) 480-1424

Marine Craft Fabricating, Assembling and Repairing Occupations 8592

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	11,158	1.5	0.9	3,781
All Occupations	12,434,282	1.5	1.5	8,062,668

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	25	61	14	93	7
	1986	97	3	18	67	15	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (67)
- Transportation & Equipment (34)
- Shipbuilding & Repair (26)
- Food & Beverages (2)

Services (8)
- Recreation (6)
- Miscellaneous (1)

Public Administration (7)
- Federal (7)

Marine Craft Fabricating, Assembling and Repairing Occupations 8592

Job Environment

Marine mechanic, ship carpenter, ship fitter and shipwright are typical occupations in this group. Marine craft fabricators build and repair ships and other marine crafts and fittings. In the construction of a wooden boat, for example, workers cut and form parts, such as keels, stems, stern posts, ribs and sidings. They also build and install structures such as mountings for machinery, shafting and propeller supports, pilot houses, cabins, rudders, decking, mast booms and ladders. The construction of metal boats requires metalworking skills. Working conditions in this occupation are difficult, and include exposure to dampness, noise, vibration and hazardous materials which require the use of safety equipment.

Educational Background and Skills

The minimum educational requirement for employment in this occupation is secondary school graduation. The level of skill required varies according to occupational specialty and the type of marine craft being built or repaired. Community college and trade/vocational school programs that emphasize welding, machining, pipefitting and marine engineering provide the basic preparation for entry into this occupation. Certain required skills are developed through on-the-job training.

Nature of Supply

The major source of supply to this occupation is the post-secondary education system. Other sources of supply include labour force re-entrants, immigrants and the military. According to preliminary estimates, movements out of this occupation to related ones should marginally exceed an influx from related occupations, suggesting that for many, these occupations represent entry-level positions in their careers.

Nearly all individuals in this occupation are men, and employment is concentrated in British Columbia, Ontario, Quebec and Nova Scotia. Over the 1981-to-1986 period the average age in this occupation rose from 36 years to 38, reflecting a drop in the number of individuals under 25. A typical career lasts between 30 and 35 years, with entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Employment growth in this area was about the same as the average for all occupations over the 1981-to-1989 period, but was highly volatile due to the sensitivity of this industry to the business cycle and interest rates.

Between 1989 and 1995, employment is expected to grow at a rate slightly below average, largely because of a levelling-off of government spending on the Navy. The number of new jobs created over this period should approximate 3,800, the bulk of which will arise from existing employees retiring, dying or leaving the occupation for other reasons. Long-term prospects may improve if offshore oil and gas exploration activity returns to former levels.

Shipbuilding is increasingly applying laser technology to the welding and cutting of heavy steel and steel alloys, requiring some workers to learn new skills. Employment in this area is influenced by economic conditions and seasonal factors, and is highest during the warm months of the year.

1985 Annual Earnings	$	
Lowest 10% of Workers	12,734	or less
Average Worker	24,749	
Highest 10% of Workers	36,359	or more

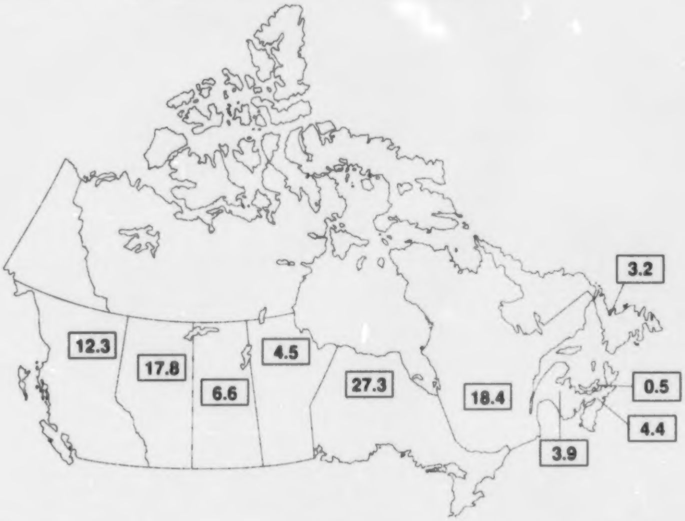
Source: 1986 Census

Excavating, Grading and Related Occupations

8711

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	46,601	-0.4	2.0	31,186
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	18	71	11	93	7
	1986	99	1	10	77	13	90	10
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (52)

Transport & Communications & Utilities (18)
- Miscellaneous Transport (13)
- Water & Other Utilities (1)

Mining (9)
- Non-Metals (2)
- Coal (2)
- Metals (2)

Excavating, Grading and Related Occupations 8711

Job Environment

This occupational group consists of the operators of various types of excavating and grading equipment, such as bulldozers, power shovels and dredging machines. In addition to operating machines, excavators are often required to do routine maintenance and minor repairs such as changing shovels, blades and other attachments. Local governments often employ equipment operators in winter months to remove snow from roads and airport runways. Other important types of work include operating open-pit mining equipment and maintaining marine facilities through dredging and pile driving.

This kind of work is carried out at building or road construction sites in all types of weather. It is done outdoors, sometimes in remote locations. People in construction work must often live in camps. The work offers some hazard from noise and vibration.

Educational Background and Skills

Apprenticeship courses in heavy equipment operation are offered in Newfoundland, Quebec and Alberta. Certification is compulsory in Quebec. Many people entering these occupations learn on the job, but more and more are taking courses at colleges and trade/vocational schools.

Operators must be strong and have good vision, fast reflexes and good hand-eye co-ordination. They require the ability to read grade plans and to use grade stakes in measuring the amount of earth to be moved. Operators of excavating and grading equipment need stamina, since they often sit for long periods of time on vibrating or bouncing machinery.

Nature of Supply

Most people enter this occupation in their early or mid-20s after completing a formal training program or being promoted from a labouring position. They tend to stay until retirement. This occupation is composed predominantly of men, though women are slowly increasing their share of employment.

Employment levels for this occupation are sensitive to general economic conditions. Between 1981 and 1986, the work force in excavating declined by 9% as a result of the recession. However, since 1986, employment has rebounded as the level of construction activity has increased, especially in Central Canada. Over the 1981-to-1986 period, the proportion of the occupational workforce in the 15-to-24 year age category fell from 18% to 10%, while the number of those 55 years and over rose from 11% to 13% — slightly higher than the average for all occupations. This aging of the workforce implies greater future replacement needs due to retirements.

Market Conditions and Job Prospects

Employment growth in this occupation was above average in the 1970s, but the recession in the early 1980s resulted in widespread lay-offs. The long-term outlook for growth is dependent upon the outlook for the economy as a whole, and especially on the outlook for major energy-related projects such as new oil extraction plants or hydro-electric projects. Over the next decade, expansion of the manufacturing industries of Central Canada should continue to provide a strong employment base. The mid-1990s are expected to see renewed investment in large-scale resource extraction projects, especially in the West. This will supplement demand from the construction of small- and medium-scale mining and forest product facilities now in progress. Increased employment in the excavating occupations will also result from the reconstruction and improvement of much of the nation's highway and municipal infrastructure over the next two decades.

Nearly 60% of excavating equipment operators are engaged in construction. Other industries providing significant employment are transport, municipal government, forestry and mining. Like the construction industry, some of these follow a boom-bust cycle, resulting in periods of unemployment for equipment operators. Workers in maintenance enjoy steadier employment, but receive lower peak-period earnings.

Technological change has influenced this occupation through the introduction of more productive heavy machinery that enables operators to do more work with greater precision. This trend is expected to continue.

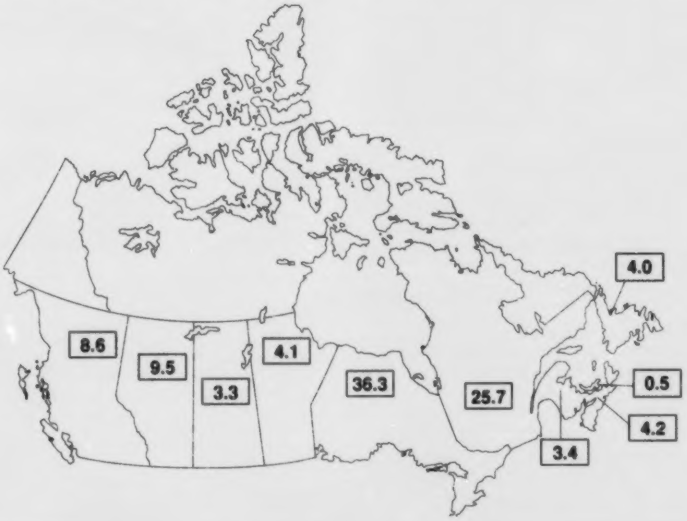
1985 Annual Earnings	$	
Lowest 10% of Workers	15,909	or less
Average Worker	27,768	
Highest 10% of Workers	41,192	or more

Source: 1986 Census

Electrical Power Line Workers and Related Occupations 8731

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	12,662	0.4	0.6	5,566
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	18	75	7	98	2
	1986	98	2	8	85	7	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (77)
- Electric Power (69)
- Telephone & Telegraph (5)
- Radio & TV Broadcasting (1)

Construction (14)

Manufacturing (4)
- Electrical Products (2)

Electrical Power Line Workers and Related Occupations

8731

Job Environment

People in this classification construct and maintain power lines used for both long-distance and local electrical transmission or distribution. Linemen/women, service linemen/women, repair linemen/women and cablemen/women are included in this category.

Linemen/women are employed in several settings. They erect high-voltage transmission lines leading from electricity generating sites to localities where the electricity is to be used. They construct support towers, install insulators and other equipment, and string transmission lines. Construction linemen/women move from project to project, sometimes between provinces and often work in remote areas.

Linemen/women are usually employed by utility companies or by contractors. Construction linemen/women who are union members obtain their work through the union on a rotating basis. Periods of unemployment between projects may occur for construction linesmen/women.

Repair and service linemen/women are on call at most times and may work for long periods especially during emergency conditions, as for example, after major storms. Cablemen/women are employed to repair and install underground or underwater electrical lines. Like linemen/women, they may be called upon to perform emergency work.

Educational Background and Skills

Apprenticeship programs are the usual means of entering the trade and educational requirements vary across Canada: Grade 9 is necessary in New Brunswick; Grade 10 in Newfoundland, Prince Edward Island, Nova Scotia, Ontario and British Columbia; Grade 11 in Manitoba and Saskatchewan; and Grade 12 in Alberta.

These workers must be physically fit and must have the agility and temperament to work at considerable heights or in awkward positions.

Nature of Supply

This workforce is predominantly male, although women are entering the trade in increasing numbers. Women are encouraged to consider this trade as a career, because of the favourable outlook for employment and the high earnings associated with this field.

Relatively few linemen/women are 55 years or older. This is, in part, due to the expansion of this occupational workforce in recent years: after slow growth between 1981 and 1986, more rapid increases occurred over the 1986 to 1989 period. Most young people enter the trade in their early 20s, and tend to remain in it for much of their working lives.

Market Conditions and Job Prospects

Employment levels have increased since the early 1980s, and moderate employment growth is projected for the period from 1989 to 1995. Expansion of electrical generating capacity is planned in most provinces (notably in Quebec, as a result of recently contracted power sales to the U.S., but also in Newfoundland, Ontario, Manitoba and British Columbia, where major projects are being planned). With this increased power-generation comes additional transmission and distribution capacity and the need for linemen/women. The new construction required for these projects should also increase employment for linemen/women in construction (as opposed to maintenance) by an estimated 22% over the 1989-to-1995 period. Expected employment gains are in excess of the projections shown on the table opposite. Employment in the areas of service and maintenance should grow as the size and complexity of the transmission and distribution expands. Job openings will also result from retirements and career changes.

Construction linemen/women work all year, but, during the summer months, activity tends to be more intense. Employment is usually full-time and, in the case of repair and service work, remains reasonably stable, despite changing economic conditions.

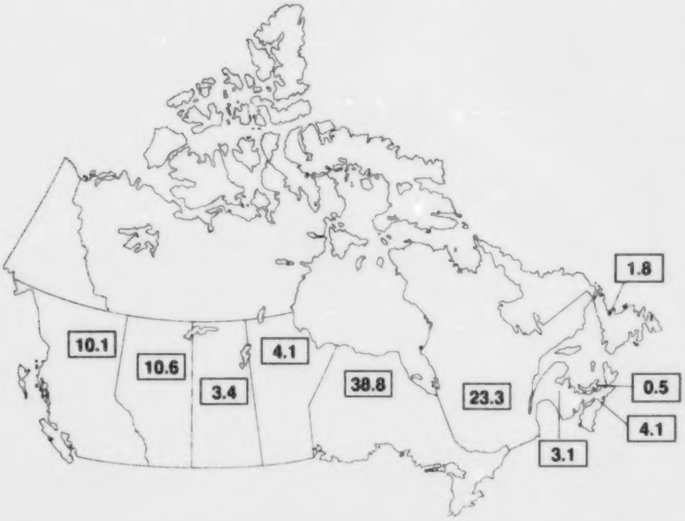
1985 Annual Earnings	**$**	
Lowest 10% of Workers	**23,535**	**or less**
Average Worker	**34,708**	
Highest 10% of Workers	**45,951**	**or more**

Source: 1986 Census

Construction Electricians and Repairers 8733

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	51,705	-0.1	0.4	19,477
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	25	68	7	94	6
	1986	99	1	17	75	8	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (64)

Manufacturing (14)
- Primary Metals (3)
- Pulp & Paper (2)
- Motor Vehicles & Trailers & Parts (1)

Transport & Communications & Utilities (8)
- Electric Power (5)
- Rail Transport (1)

Construction Electricians and Repairers

8733

Job Environment

Construction electricians install and repair wiring in buildings and other structures and install switches, conduits, circuit breakers, lighting and other apparatus. They work on nearly all types of construction, from housing to factories to road building, either as employees or as contractors. Electricians who are members of a union usually work out of a hiring hall, where work is allocated on a rotating basis. Much electrical work is done in a standing position, often in confined spaces. Risks involved include falling from a height or receiving an electrical shock; work is often indoors, although it is sometimes outside in poor weather.

Educational Background and Skills

Most electricians enter the trade through apprenticeship. All provinces offer apprenticeship programs, which generally take four years (five years in New Brunswick and Ontario). Training which meets the specifications of the Interprovincial Standards Programme is recognized across Canada. The educational requirement for entrance to apprenticeship programs is Grade 12 in British Columbia, Grade 11 in Saskatchewan, Grade 9 in New Brunswick and Grade 10 in all other provinces except Alberta, where Math 20/23 is required. Certification is required in Nova Scotia, Prince Edward Island, New Brunswick, Quebec, Ontario, Saskatchewan and Alberta and is obtained by completing an apprenticeship or passing a qualifying examination. To obtain permission to write the qualifying exam, a person must have considerable documented experience in the trade.

People considering the electrical trade should be in reasonably good physical condition. An analytical ability is an asset, since electricians must understand building plans and wiring diagrams.

Nature of Supply

This occupation is overwhelmingly male, with women accounting for only 1% of the workforce. This should change as employers and unions in the construction industry are expected to recruit more women in an effort to ensure an adequate workforce.

Between 1981 and 1986, the effects of the recession resulted in a smaller and somewhat older workforce. However, in the years since 1986, the number of people entering the electrical trade has been high, especially in Central Canada, where brisk construction activity has stimulated job growth.

In recent years, most young people have entered the trade between the ages of 18 and 20 years, but many leave the trade at an earlier age than is the norm for other construction occupations. This is, in part, due to many electricians forming their own contracting business after gaining experience in the trade.

Market Conditions and Job Prospects

During the 1980s, employment of electricians declined due to the recession and then recovered as construction activity underwent a rapid increase in most regions of Canada. Expected employment gains are in excess of the projections shown on the table opposite. Employment in new construction for electricians over the 1989-to-1995 period should increase by over 15%, a growth rate above the all-occupation average. The pattern of investment in Canada is the most important determinant of employment patterns for electricians. Over the early 1990s, a continuation of the expansion and modernization of many manufacturing industries is expected, especially in Central Canada. In the mid-1990s an increase in building of resource extraction facilities is projected, with an impact on all regions of Canada. Job openings will also result from replacement needs brought about by retirements and career changes.

Technological developments in building design will also increase job opportunities for electricians. The increasing use of computers to control building functions, such as heating, air conditioning, ventilation, elevators and lighting, will provide work for electricians who install the equipment and wiring for these control systems.

Electricians generally work on a project-by-project basis, and thus may experience unemployment when construction activity is slack. However, some of the work of electricians involves maintenance and repair, which is less prone to cyclical fluctuation. Statistics show that seasonal variation in employment is not nearly as pronounced as in most other construction trades.

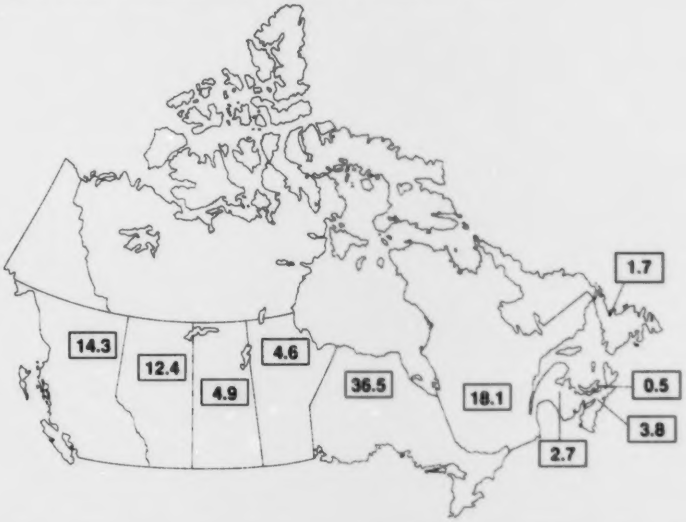
1985 Annual Earnings	$	
Lowest 10% of Workers	14,572	or less
Average Worker	29,724	
Highest 10% of Workers	42,970	or more

Source: 1986 Census

Wire Communications and Related Equipment Installing and Repairing Occupations 8735

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%)		Number of Job Openings 1989 - 1995
		Actual 1981 - 1989	Projected 1989 - 1995	
This Occupation	34,740	1.0	0.5	14,996
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	94	6	26	69	5	96	4
	1986	94	6	11	83	6	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (80)
- Telephone & Telegraph (68)
- Radio & TV Broadcasting (6)
- Rail Transport (3)

Manufacturing (7)
- Electrical Products (6)

Construction (6)

Wire Communications and Related Equipment Installing and Repairing Occupations

8735

Job Environment

Occupations in this group deal with the installation, repair and maintenance of all types of wire communications equipment, including installation of telephone lines, maintenance of telephone switching systems at central locations, maintenance of special systems for the transmission of computerized data, and installation telephones, cable TV lines and burglar alarms in private residences and commercial buildings. Although there is a trend towards pre-wired buildings, much work still consists of upgrading wiring in existing buildings. New equipment installed in large commercial buildings is now often repaired at a central facility, rather than on-site. Some of the titles in this classification include telephone technician, wire installer, burglar-alarm installer and switchboard repairer.

The working conditions for this group vary greatly, depending on the nature of the position. Line installers work outdoors, often in inclement weather (especially in the case of emergencies), installing poles and lines. When services are underground, line installers must work in very cramped quarters fishing wires through small passageways. Other workers install or repair equipment in commercial buildings and private houses.

Wiring technicians work regular hours, but they may be on call 24 hours a day for emergency repairs, which can result in long hours for the technician.

Educational Background and Skills

There are no compulsory apprenticeship programs, but many people entering this occupation have taken electronics courses at a community college or vocational school. Depending on the level of the position, some may even start upon graduation from a technical program in high school. Training programs offered by employers are often required.

In large companies, after taking electronics courses, many wiring technicians must complete an internal apprenticeship program since the technical equipment is usually specific to each firm. This can reduce mobility between companies. Promotion within a company is the norm.

Nature of Supply

Most wire communications technicians are male, with females comprising only 6% of the labour force. However, women are encouraged to consider careers in this occupation. This labour force is younger than the average for all occupations with only about 6% being 55 or older. While over half of these technicians have no post-secondary training, a sound technical background increases the likelihood of a successful career. Fields of study leading to this occupation include electric and electronic engineering technology, telecommunications technology and related programs which are available from community colleges and vocational schools.

Market Conditions

Employment of wire communications technicians grew rapidly during the 1970s, as telephone and other wire-communications systems were extended and upgraded. The growth of cable TV distribution networks contributed to this expansion. Upgrading of current wire telecommunications systems with fibre optics is expected to provide another boost to employment in the 1990s. The importance of this new demand will depend on the extent of use and the speed with which fibre optics are incorporated into existing wire communications systems. If this new technology is extended to businesses and households then a large jump in the employment of technicians is expected. Conversely, residential construction is expected to slow and will likely remain below recent levels throughout most of the 1990s, requiring fewer technicians.

Replacement demand as a result of retirements is expected to be low, due to the relatively young workforce in this occupation. In the telephone and telecommunications sector, work tends to be steady, with little seasonal or cyclical variation. However, technicians working for manufacturers of electrical products or in the construction industry can expect to encounter seasonal and cyclical employment.

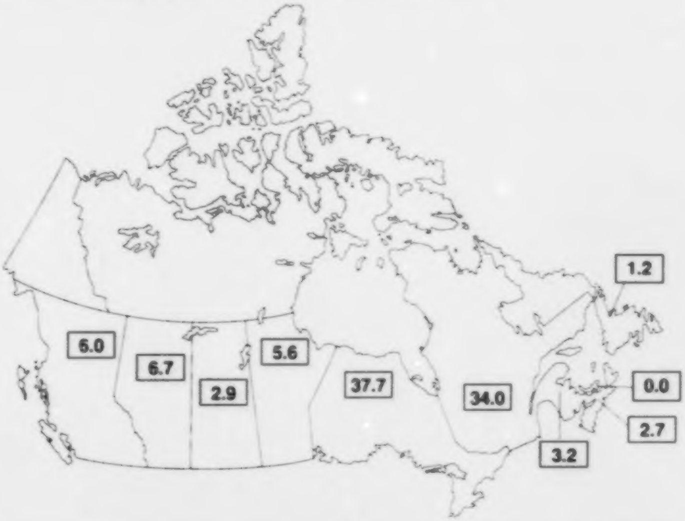
1985 Annual Earnings	**$**	
Lowest 10% of Workers	**22,255**	**or less**
Average Worker	**33,519**	
Highest 10% of Workers	**42,128**	**or more**

Source: 1986 Census

Inspecting, Testing, Grading & Sampling Occupations: Electrical Power, Lighting & Wire Communications Equip. Erecting, Installing & Repairing 8736

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,281	-1.7	-0.7	1,461
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	85	15	15	72	13	97	3
	1986	84	16	11	79	10	97	3
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (60)
- Electric Power (29)
- Telephone & Telegraph (27)
- Rail Transport (2)

Manufacturing (25)
- Electrical Products (22)

Public Administration (6)
- Provincial (2)
- Federal (2)
- Municipal (2)

Inspecting, Testing, Grading & Sampling Occupations: Electrical Power, Lighting & Wire Communications Equip. Erecting, Installing & Repairing

8736

Job Environment

Occupations in this group include patroller, cable tester, electrical inspector, relay tester and testboard analyzer, and are concerned with insuring quality in the installation and repair of wiring and equipment for electric power generation and transmission. Patrollers inspect overhead wires for signs of damage or weakness, often from a pole or by using an infra-red telescope. Other inspectors test and inspect electrical cables in buildings to determine whether they are capable of carrying the required electrical load, read wiring diagrams to ensure that buildings meet the requirements of the electrical code, and examine fire-damaged buildings to determine if faulty wiring may have been a cause of fire. They also assist owners, contractors and electricians in planning electrical installations. People in this occupational group also test transmission facilities (overhead wires, transformers and switching systems), trace and diagnose wiring and circuit deficiencies, and test and maintain office telecommunications equipment.

Inspectors may work outdoors, often in poor weather conditions and for long hours during emergencies. In large generating stations or in telecommunications offices, their jobs often require shift work. Many inspectors are in contact with the public in private homes and commercial buildings or on construction sites.

Educational Background and Skills

People usually enter this occupation after several years' experience in an electrical repair or installation position. There are no provincial apprenticeship programs for this occupation. Most large firms provide in-house training to those who have already completed related courses. People planning to be inspectors should complete high school and related technical programs, such as community college courses in electricity and electronics, and instrumentation.

Since technology is changing quickly in this field, and many systems are becoming computerized, employees can expect to undergo continuous retraining as new equipment is developed. Training may not be transferable between firms, however, because each firm uses specialized equipment; as a consequence, people in this occupation tend to make it a career.

Nature of Supply

Most people in this occupation are male, although the proportion of females grew to 16% in 1986. The recession of the early 1980s resulted in a significant decline in the occupational workforce, but employment has rebounded in recent years. There is a relatively high concentration of workers between the ages of 25 and 54 in this group, reflecting the need for previous work experience in a related field.

Market Conditions and Job Prospects

During the 1970s, employment in this group increased faster than average, but recent changes in technology (such as self-diagnostic and remote-diagnostic systems) will cause employment to contract over the projection period. The slowdown in employment may be offset by a high volume of industrial construction having electrical applications.

Employment in this occupational group is insensitive to seasonal and cyclical economic changes. Part-time work is rare.

The main sectors of employment for this group are the telecommunications industry and electric utilities, which together account for 60% of employment in this occupation. Other inspectors work in the manufacturing of electrical products and in government.

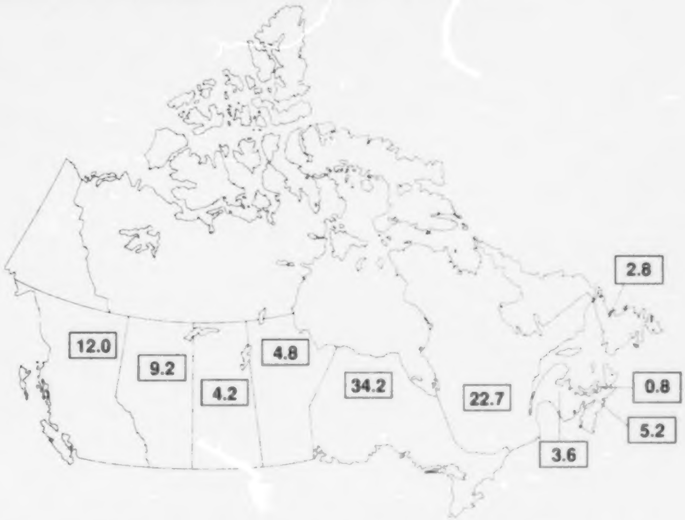
1985 Annual Earnings	$	
Lowest 10% of Workers	20,482	or less
Average Worker	33,722	
Highest 10% of Workers	45,054	or more

Source: 1986 Census

Carpenters and Related Occupations 8781

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	121,337	0.7	0.7	52,450
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	22	62	16	88	12
	1986	99	1	17	68	15	86	14
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (73)	Manufacturing (9)	Services (7)
	- Wood (4)	- Education (2)
	- Furniture & Fixtures (2)	- Accommodation & Food (1)

Carpenters and Related Occupations

8781

Job Environment

The carpentry occupations include carpenters, joiners, framers, form builders, maintenance carpenters, and others involved in the construction, renovation and maintenance of wooden structures. They are among the most numerous of skilled construction tradespeople, finding employment in all classes of construction. Carpenters have traditionally worked with wood, but in modern construction they also work with plastics, metal and other materials. Rough carpentry involves construction of forms, erection of building frames and other work associated with the assembly of basic structures, while finish carpentry is concerned with the final stages of construction, such as the installation of doors, mouldings and stairs. Fully trained carpenters can do both rough and finish carpentry, but many choose to specialize; carpenters in rural regions are likely to practice all of their skills, while those living in urban areas may specialize in, for example, house framing or stair construction.

Carpenters can work as employees or as independent contractors; in both cases, they usually work on a project-by-project basis. When construction activity is slow they may experience unemployment. Members of construction unions usually work out of union hiring halls, where work is allocated to members on a rotating basis. Some carpenters work as maintenance personnel for 35 to 40 hours per week and experience more stable employment patterns than those in the construction industry.

Educational Background and Skills

Although many carpenters learn the trade on an informal basis, apprenticeship is recommended as an avenue to the trade. Carpenters with a thorough knowledge of trade skills have a wider choice of job settings and generally find more work and can demand higher rates of pay than those with limited training.

All provinces offer apprenticeship programs, which usually last four years. The minimum educational requirements are Grade 10 in Nova Scotia, Prince Edward Island, Ontario, Saskatchewan and British Columbia, and Grade 9 in Newfoundland, New Brunswick, Manitoba and Alberta. In Quebec working carpenters must be certified by provincial authorities. Completion of apprenticeship training is the most common way of qualifying for certification. Apprenticeship training meeting the standards of the Interprovincial Standards Programme is recognized in all provinces.

Nature of Supply

The carpentry workforce is almost entirely male and although the number of women entering the trade is growing, they comprise only about 1% of the occupation. Nonetheless, women are encouraged to consider carpentry as a career in view of the favourable employment outlook and high potential earnings. In past years, immigration has accounted for only a small proportion of new trade entrants.

Carpenters tend to remain in the trade for most, if not all, of their working lives. Entry usually occurs between the ages of 17 and 21. Many carpenters become building contractors, but remain closely attached to the trade. The proportion of working carpenters approaching retirement is somewhat higher than the average for all occupations, indicating that replacement demand should be a significant source of jobs in the near future.

Market Conditions and Job Prospects

Employment of carpenters is expected to grow at about the average rate over the 1989-to-1995 period, or somewhat faster than the projection shown on the opposite page. Through the early 1990s construction of manufacturing and other facilities is expected to proceed at a strong pace, especially in Central Canada. Work on new resource extraction developments is expected to bolster the job market as investment in the mid-1990s flows into primary industry. Housing construction is expected to remain at moderate levels in most provinces, but some urban areas could see high growth due to population movements over the 1990s. New jobs created as a result of increased construction activity will be in addition to those resulting from persons leaving the trade for reasons of health, retirement or career change.

Earnings

The census earnings figures shown include the incomes of many carpenters with only informal training. Those having certificates of apprenticeship are likely to have higher than average earnings.

1985 Annual Earnings	$	
Lowest 10% of Workers	10,926	or less
Average Worker	23,302	
Highest 10% of Workers	36,158	or more

Source: 1986 Census

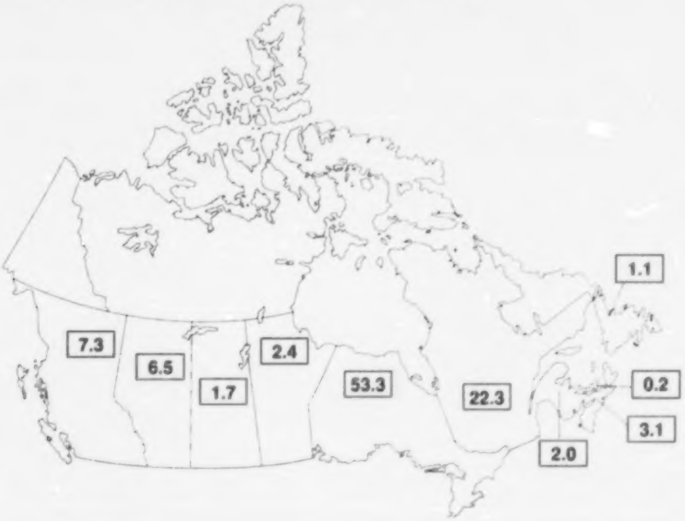
For further information, contact:

United Brotherhood of Carpenters
and Joiners of America
Canadian Research Office
Suite 807, 5799 Yonge Street
Willowdale, Ontario M2M 3V3

Brick and Stone Masons and Tile Setters 8782

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	24,576	2.2	1.2	10,093
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	19	70	11	88	12
	1986	99	1	15	70	15	87	13
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (88)

Manufacturing (7)
- Primary Metals (3)
- Non-Metal Mineral Products (1)

Trade (2)
- Retail (1)

Brick and Stone Masons and Tile Setters

8782

Job Environment

This occupational group includes the masonry trades, which are concerned with preparing and laying brick, block, stone, tile, refractory brick and similar materials. In addition to their building activities, masons read and interpret plans, take measurements and lay out their work. In much of Canada, they work in commercial and institutional building construction, but in Central Canada, where brick is a popular material for residential structures, many bricklayers are employed in housing construction.

Masons work in a variety of settings involving new or renovation construction. They are often employed on a project-by-project basis, either as employees or as independent contractors. Masons who are members of construction union locals usually work out of a union hiring hall where work is allotted on a rotating basis.

Educational Background and Skills

The principal avenue of entry to the masonry trade is through an apprenticeship. A tradesperson's qualification certificate is compulsory in Nova Scotia, New Brunswick and Quebec, while in other provinces it is a definite asset. Training that conforms to the specifications of the Interprovincial Standards Programme is officially recognized in all provinces.

Apprenticeship programs in masonry are generally three to four years in length. All provinces except Quebec, Ontario and Manitoba offer pre-apprenticeship or pre-employment courses. The minimum educational requirement for entrance to the apprenticeship program ranges from Grade 8 in Newfoundland, Nova Scotia, New Brunswick and Ontario, and Grade 9 in Manitoba and Alberta, to Grade 10 in Prince Edward Island, Saskatchewan and British Columbia. Other requirements are the ability to make accurate calculations regarding dimensions and distances, good spatial perception for interpretation of drawings and specifications, and good hand-eye co-ordination. Reasonably good physical condition is also necessary, because masons often lift heavy loads and work in a stooping or kneeling position. Much of the activity is outdoors.

Apprenticeships in tilesetting are offered in Quebec, Saskatchewan, Alberta and British Columbia.

Many masons learn the trade informally by working as helpers and by observing experienced workers. However, formal apprenticeship training is more likely to provide a complete set of skills in a shorter time.

Nature of Supply

Most masons are men, although more women have been entering the trade in recent years. Individuals commonly enter the trade between 17 and 22 years of age, and continue practicing up to middle age and beyond. A large number of masons are in the older age group, and their retirement will create employment opportunities for those entering the trade during the 1990s.

Market Conditions and Job Prospects

Employment prospects for masons are closely tied to the construction industry. Construction activity in Canada is expected to remain healthy through the 1990s, although slack periods may develop during recessions. The early 1990s are expected to see considerable building activity derived from expansion of the Canadian manufacturing industries. In the mid-1990s resource industry upgrading will provide the focus of construction activity. Housing construction is expected to remain at modest levels throughout most of the decade, although some urban centres may experience fast growth.

Masons who work on construction projects may experience frequent periods of idleness as they wait for new work following completion of a project. This pattern of unemployment is more pronounced during economic slowdowns, and has been seen often in past years. During the recession of the early 1980s, unemployment rose dramatically, peaking in 1984. Work is more plentiful during the summer months.

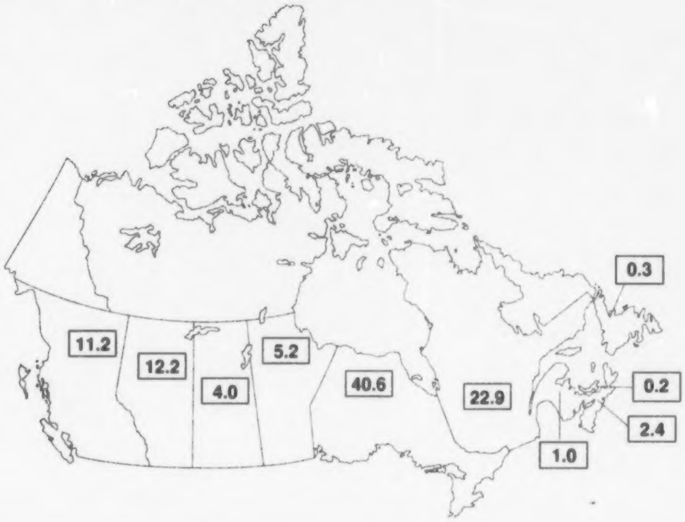
1985 Annual Earnings	$	
Lowest 10% of Workers	10,367	or less
Average Worker	24,931	
Highest 10% of Workers	38,463	or more

Source: 1986 Census

Concrete Finishing and Related Occupations 8783

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,184	-0.6	-0.4	5,461
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	21	66	13	91	9
	1986	99	1	16	69	15	87	13
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (83)

Manufacturing (10)
- Non-Metal Mineral Products (8)

Transport & Communications & Utilities (3)
- Miscellaneous Transport (1)
- Electric Power (1)

Concrete Finishing and Related Occupations

8783

Job Environment

Occupations in this group include cement finishers and masons, cement-gun nozzle operators, concrete smoothers and terrazzo workers. Most cement finishers are employed on construction sites ranging from sidewalks, boulevards and foundations for houses to large construction projects, such as high-rise buildings. They usually work outdoors.

The cement mason adjusts forms or molds into which concrete is poured. After ensuring the concrete is the right depth and that there are no air pockets, the cement mason smooths the surface using a large board with a handle. In some types of construction, the cement mason may spray the concrete onto a sub-structure instead of pouring it into forms. The work is finished using hand or power tools.

Terrazzo workers apply marble or stone chips to floors, walls or other fixtures to obtain a durable and decorative surface. They first prepare the surface with flooring paper followed by a mortar mixture. They then develop a pattern using metal strips, and embed the terrazzo tiles according to the pattern. Sometimes the tiles are pre-finished, but usually they require grinding and polishing to provide a flat smooth surface.

Most cement masons in construction work on a project-by-project basis. Those who are union members work out of union hiring halls where work is assigned on a rotating basis. As is the norm in construction work, where there may be spells of idleness between jobs, the number of hours worked per week or year depends on how busy the industry is; overtime is common.

Educational Background and Skills

On-the-job training is a common way of learning the trade and many people enter this occupation directly out of high school. Quebec, Ontario, Saskatchewan, Alberta and British Columbia administer apprenticeship programs involving on-the-job training, although only Quebec's program is compulsory. Where available, apprenticeship is the recommended route to the trade. In other provinces where training exists, programs are offered which are administered by a union or by a joint labour-management training board.

Nature of Supply

The cement mason workforce is predominantly male and is slightly older than the average for all occupations. This situation is a result of a reduced inflow of young workers during the recession of the early 1980s, and is changing as young people enter the trade in response to more job opportunities. In recent years, most young people have entered the trade between the ages of 19 and 23 years. In 1986, 85% of cement masons worked on a full-time basis.

Market Conditions and Job Prospects

Industry experts expect employment gains to be in excess of the projections shown on the table opposite. Projections of construction activity over the 1989-to-1995 period indicate that employment of cement masons will grow at a rate above the average for all occupations. A recent trend toward greater use of concrete in building and engineering construction should contribute to job growth. Some of this employment growth will consist of more intensive utilization of the workforce, but new jobs will also result. Construction is projected to be most active in Central Canada until the mid-1990s as industrial and commercial expansion occurs; in the mid-1990s growth is projected to shift to resource-based construction. Turnover is relatively high in this occupation and, along with replacement needs due to retirements, will provide additional job openings.

Work for cement masons is seasonal, with a peak in the summer months. As with many construction trades, work may become scarce during economic downturns.

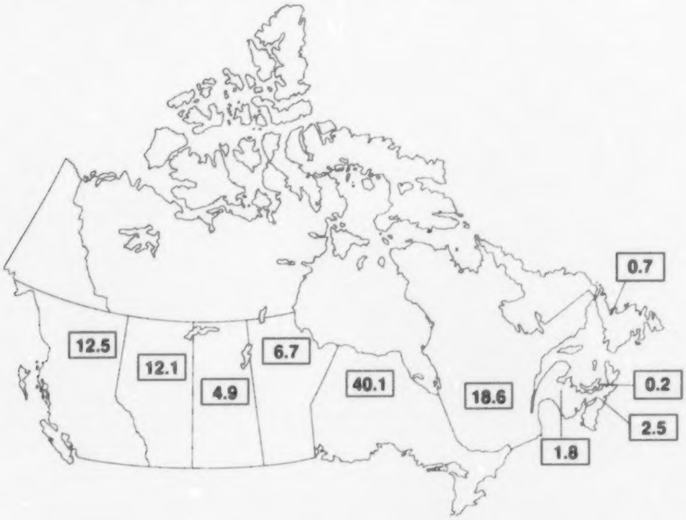
1985 Annual Earnings	$	
Lowest 10% of Workers	12,083	or less
Average Worker	25,290	
Highest 10% of Workers	40,138	or more

Source: 1986 Census

Plasterers and Related Occupations 8784

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	17,647	1.7	1.7	18,933
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	25	69	6	85	15
	1986	98	2	19	73	8	84	16
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (95) **Services** (2) **Manufacturing** (1)

Plasterers and Related Occupations

8784

Job Environment

This occupational grouping encompasses plasterers, lathers, drywall installers and tapers. Plasterers apply plaster, stucco and other materials to building surfaces. The materials are usually in the form of a slurry, which is applied and then given the appropriate texture. Lathers fasten metal, wood or gypsum lath to structural surfaces to provide a base for plaster or other materials. Sometimes they build complex-shaped frames for cornices or other ornamental shapes for buildings. Drywall installers trim and attach drywall, a commercial material used widely in place of plastered walls. After drywall is applied, it must be finished by applying tape or other material over corners and the joints between the sheets and then sanded to prepare for final finishing.

Workers in these trades are employed in a variety of construction settings, residential and non-residential, union and non-union, as employees and as independent contractors. Except for the application of stucco plastering, all drywall and plastering is done indoors, frequently in dusty, poorly lit conditions.

Educational Background and Skills

The provinces of Quebec, Ontario and British Columbia offer apprenticeship programs in plastering and drywall. In Quebec working plasterers and drywallers must be certified by provincial authorities. Completion of apprenticeship training is the most common way of qualifying for certification. Admission to apprenticeship in Ontario requires Grade 8; British Columbia requires Grade 10. There is no educational requirement for entrance to the other provincial apprenticeship programs in this trade group. For lathers, apprenticeship training is offered in Quebec, Ontario, Manitoba, Alberta and Yukon. In Ontario and Yukon, Grade 10 is required, while in Manitoba and Alberta, Grade 9 is a prerequisite. Certification is compulsory for lathers in Quebec. Apprenticeship in drywall finishing is offered only in British Columbia; Grade 10 is a prerequisite. Apprenticeship programs in drywall installing are available in Manitoba, Saskatchewan and British Columbia. The minimum educational requirement for these is Grade 9 in Manitoba and Grade 10 in Saskatchewan and British Columbia.

Plastering and drywall work is often physically demanding and requires good general health, stamina and good vision.

Nature of Supply

Most workers enter the trade between 17 and 21 years of age. Some plasterers/drywallers leave the occupation for another career path in their mid-to-late 40s. While the number of females in this trade is small, their number has grown markedly over recent years. Immigration has been a steady but minor source of occupational supply.

Market Conditions and Job Prospects

Over the 1990s the trade is expected to enjoy healthy employment conditions in most Canadian regions as investment in the construction of commercial and institutional buildings remains strong. Strong growth, however, is unlikely to occur until late in the decade when an expansion of housing construction is expected. A source of considerable employment of drywallers will be the renovation of older buildings.

Drywall has largely replaced plaster as a wall construction material; this will result in far more job opportunities for workers skilled in drywall installation and taping. Plasterers will be required in much smaller numbers for special decorative applications.

Because most of the work in this trade group is done indoors, seasonal fluctuation in employment is less than for other construction trades. Employment is vulnerable to periodic slowdowns in construction activity. Most work is full-time.

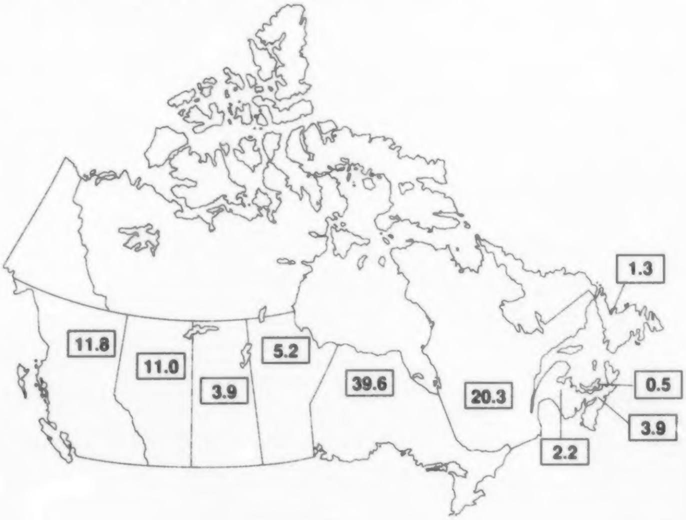
1985 Annual Earnings	$	
Lowest 10% of Workers	10,713	or less
Average Worker	23,691	
Highest 10% of Workers	37,165	or more

Source: 1986 Census

Painters, Paperhangers and Related Occupations 8785

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	39,899	2.3	0.9	39,745
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	94	6	28	60	12	80	20
	1986	93	7	26	62	12	77	23
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (77)

Services (9)
- Education (2)
- Hospital (1)

Manufacturing (6)
- Metal Fabricating (1)

Painters, Paperhangers and Related Occupations 8785

Job Environment

People in the painting and decorating trade apply paint, wallpaper and fabrics to walls and ceilings. They work in many types of construction projects, as well as in building maintenance and renovation.

Painters first prepare surfaces by sanding or removing old paint or wallpaper and repairing old plaster and defective woodwork. Next, they lay protective sheeting over exposed floors or other surfaces that are not to be painted. After preparing paint and equipment, they apply the paint by brush, roll or spray. Painters must stand, bend and crouch for long periods and work at heights. While heavy lifting is not common, painters must move ladders and paint containers.

Employment is usually on a project-to-project basis. Painters often work as self-employed contractors or as members of a construction union receiving work from a union hiring hall on a rotating basis. Painters may also be employed on a permanent basis to maintain buildings or other large structures.

Educational Background and Skills

Apprenticeship programs in painting last three to four years and are offered in all provinces. The minimum educational requirement for entrance is Grade 8 in Newfoundland, Nova Scotia and New Brunswick; Grade 9 in Manitoba and Alberta; and Grade 10 in Prince Edward Island, Ontario, Saskatchewan and British Columbia. Certification is compulsory in Quebec.

Nature of Supply

The painting and decorating trade is predominantly male, although more women are entering the occupation in response to favourable employment opportunities and potentially good wages. Immigration has provided a significant number of trained people to the trade workforce. Most people first enter this profession between the ages of 17 and 20, and many remain until retirement. The age distribution of workers in this trade is similar to that for the all-occupation average, although the proportion of those in the 15-to-24 year age group is larger-than-average.

Market Conditions and Job Prospects

Employment of painters is expected to increase slowly over the 1989-to-1995 period. In construction, a continuing high level of investment in new and renovated commercial and institutional buildings is expected to offset a lower level of housing construction, and thus employment should edge up slightly. There will be some regional variation in employment demand. Retirements and career changes will result in the bulk of new job openings.

Since much of the work of painters is outdoors and exposed to the elements, much painting work can be done only in good weather; work is therefore less plentiful in winter months. However, because of the need to maintain existing buildings and other structures, employment is relatively stable in times of economic downturn. Some 20% of painters work on a part-time basis.

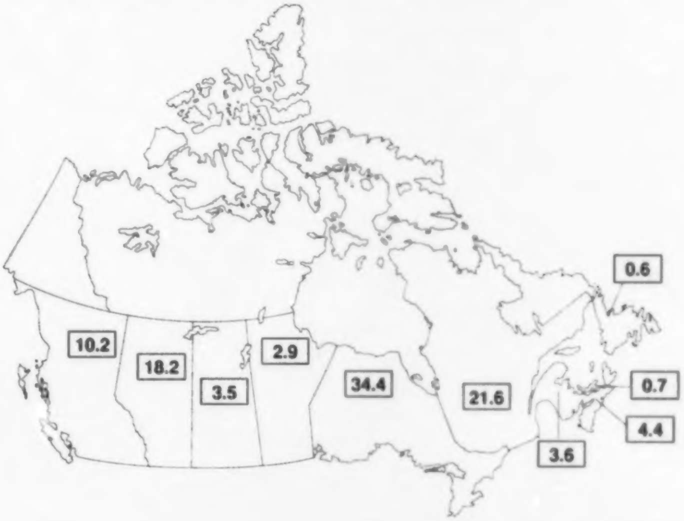
1985 Annual Earnings	$	
Lowest 10% of Workers	9,893	or less
Average Worker	22,150	
Highest 10% of Workers	34,075	or more

Source: 1986 Census

Insulating Occupations, Construction 8786

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	5,163	-1.9	1.5	5,455
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	38	55	7	87	13
	1986	97	3	20	71	9	86	14
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (76)

Manufacturing (17)
- Non-Metal Mineral Products (3)
- Chemicals & Chemical Products (2)
- Rubber & Plastics (2)

Mining (2)
- Petroleum & Gas (1)

Insulating Occupations, Construction

8786

Job Environment

This occupational group includes air-conditioning equipment insulators, insulation blowers, construction insulators and pipe coverers, whose job is to prevent the loss or transmission of heat, air or sound. In building, this involves nailing, stapling or fastening insulating bats to joints, studs or other structural parts, and fastening vapour barrier sheeting over bats, or blowing loose insulation material into spaces within walls, ceilings or floors. Rigid foam insulation is either nailed or glued onto walls and then covered with a sheathing material. In commercial buildings, workers may use a hose to spray foam into cavities between walls. Boilers, heating pipes and air conditioners are also insulated to prevent unwanted transfer of heat. An insulating blanket or sheath is cut to size and placed over the heat-radiating part. The insulation is then taped, sewn, wired or otherwise secured in place.

Insulators work both indoors and outdoors on construction sites, and in existing building when insulation is being upgraded. They must often work in cramped, dusty areas (such as attics) or stand on scaffolding or ladders for long periods of time. Since there is some health risk in removing older types of insulation such as asbestos or urea formaldehyde foam insulation, insulators need to take proper safety precautions.

Employment is usually on a project-by-project basis. Insulators often experience periods of idleness between projects.

Educational Background and Skills

The preferred method of entering this profession is through an apprenticeship program consisting of three or four years of on-the-job training combined with some in-school training. Formal apprenticeships are offered in New Brunswick, Quebec, Saskatchewan, Alberta and British Columbia. Only Quebec has compulsory certification. Most people enter this occupation after graduation from high school. Private training programs are available in Ontario.

Insulation workers use a variety of hand and power tools. Although a great deal of strength is not required for this occupation, co-ordination and the ability to stand for long periods of time are important.

Nature of Supply

The workforce in the insulating occupation is predominantly male. In 1986, the age structure of the insulator workforce was similar to that of the all-occupation average.

Market Conditions and Job Prospects

Employment in this occupation grew at about twice the average during the 1970s but fell during the recession of the early 1980s. The rapid growth during the 1970s can be attributed to rising energy prices and government incentive programs, which encouraged the refitting of older buildings with insulation and the upgrading of insulation standards for new buildings. The incentive programs are not likely to be repeated and most older buildings have now been refitted, so it is unlikely that another boom will occur. However, higher insulating standards for new buildings should contribute to a healthy employment picture. In the early 1990s, growth will be concentrated in non-residential construction, which should include a substantial commercial and institutional component — offices, stores and hospitals, for example. Later in the 1990s, housing construction is expected to expand, providing another source of employment growth.

This relatively optimistic employment outlook is tempered by seasonal and business cycle swings.

1985 Annual Earnings	$	
Lowest 10% of Workers	12,630	or less
Average Worker	27,723	
Highest 10% of Workers	41,071	or more

Source: 1986 Census

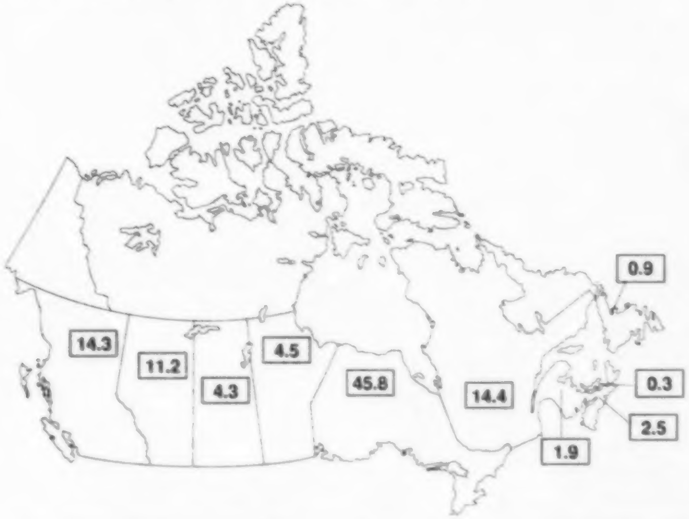
For further information, contact:

Heat and Frost Insulators
and Asbestos Workers
3585 Dianne
Terrebonne, Quebec J6W 5C9
(514) 433-2926

Roofing, Waterproofing and Related Occupations 8787

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	14,127	4.5	3.9	18,243
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	37	58	5	81	19
	1986	99	1	30	64	6	79	21
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (95)

Manufacturing (3)
- Metal Fabricating (1)

Roofing, Waterproofing and Related Occupations 8787

Job Environment

The work of roofers involves covering roofs with metal, asphalt shingles, wooden shingles, tar, gravel or other materials, and in some instances applying waterproofing compounds to underground surface structures, such as concrete foundations. When installing roofs on houses, roofers nail shingles into place, fasten metal stripping (known as flashing) around chimneys and pipes, and caulk joints to prevent water leaks. Roofs of commercial buildings are usually finished either by securing sheets of metal or, on flat roofs, by applying alternate layers of hot tar and roofing felt. In the latter case, a helper on the ground melts the tar and pumps or hoists it to the roof where the roofer spreads it with a mop or brush.

Roofers work in high temperatures in the summer. They have one of the highest rates of injury in the construction trades, owing to the frequency of slips and falls.

Educational Background and Skills

Most people enter this trade through on-the-job training or apprenticeship programs, which are offered in British Columbia, Alberta, Saskatchewan, Manitoba, Quebec and New Brunswick. Certification is compulsory in Quebec and British Columbia. The minimum educational requirement ranges from Grade 8 to Grade 10. Roofers often start out as helpers for an experienced roofer, and later in their careers may advance to a supervisory position or start their own roofing businesses.

Roofers should be in good physical condition, have a good sense of balance and be comfortable working at heights and on sloped roofs. Roofers frequently experience knee problems, especially when shingling roofs.

Nature of Supply

Most roofers are male, with females comprising about 1% of the workforce. They usually stay in the trade for only a portion of their working lives because of the strenuous and risky nature of roofing work. Most first enter the trade between the ages of 17 and 20.

Market Conditions and Job Prospects

Roofing work is highly seasonal, because of the need for dry working conditions and roofers can expect periods of unemployment even in the summer. When the weather is good and building activity is high, they may work considerable overtime. Since roof rebuilding and repair accounts for a large proportion of roofing work, there is demand for roofers even during recessions.

Employment growth in this occupation was stronger than average during the 1970s. It fell dramatically during the 1982 recession but has since rebounded. The outlook is for modest new job growth and higher-than-average replacement needs. The expected continuing high level of non-residential construction in Central Canada and an expansion of resource-based construction projected for the mid-1990s should provide a healthy employment base for the roofing trade.

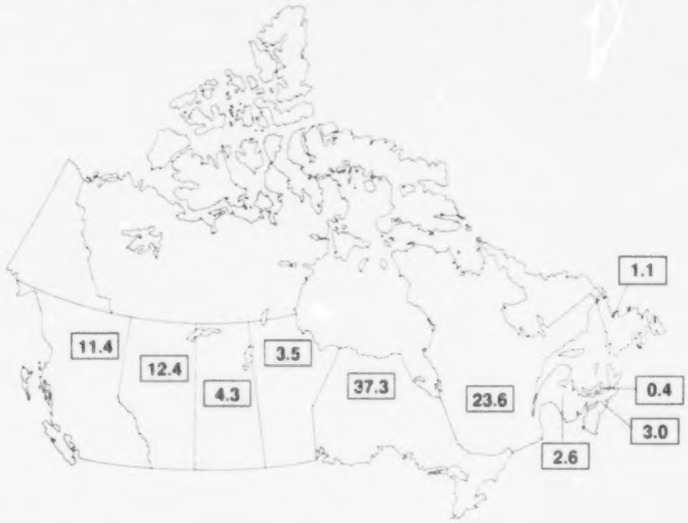
1985 Annual Earnings	$	
Lowest 10% of Workers	9,659	or less
Average Worker	22,837	
Highest 10% of Workers	37,092	or more

Source: 1986 Census

Pipefitting, Plumbing and Related Occupations 8791

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	48,304	0.2	0.5	20,241
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	20	69	11	93	7
	1986	99	1	13	74	13	91	9
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (61)

Manufacturing (14)
- Pulp & Paper (4)
- Primary Metals (2)
- Chemicals & Chemical Products (2)

Transport & Communications & Utilities (8)
- Water & Other Utilities (2)
- Gas Distribution (2)
- Electric Power (1)

Pipefitting, Plumbing and Related Occupations

8791

Job Environment

This occupational group includes workers in the piping trades — plumbers, pipefitters, steamfitters, gasfitters and sprinkler fitters. While all these trades concern the installation and repair of piping systems, each has a different focus. Plumbers generally work in a residential or commercial setting; pipefitters work at industrial applications; steamfitters and gasfitters work on piping with special needs; sprinkler fitters install sprinkler systems in buildings for fire protection. Much of the work is on residential and commercial maintenance, and on construction projects.

People in these occupations must understand and interpret detailed plans. They cut and shape pipes, install fittings and supports, and modify structures to accommodate their work. They use a wide range of hand and power tools, torches and welding equipment. By acquiring peripheral skills, such as general welding skills or a basic knowledge of electricity, they often improve their employability. Working conditions in the piping trades are often cramped and uncomfortable, and may require working at considerable heights; minor injuries are not uncommon. Most piping tradespeople are employed by contractors or builders on a project-to-project basis. Many are members of construction unions and work out of union hiring halls.

Educational Background and Skills

All provinces offer apprenticeship programs in at least one of the piping trades. All offer four- or five-year programs in plumbing, and most stipulate either Grade 9 or Grade 10 as a prerequisite. In all provinces except Newfoundland and Manitoba, working plumbers must be certified by provincial authorities. Completion of apprenticeship training is the most common way of qualifying for certification. Prospective piping tradespeople should be in good physical condition and have good manual dexterity.

Nature of Supply

The piping trades are predominantly male, although more women are entering the field as a result of favourable employment opportunities and potentially high earnings. Most people first enter these occupations between the ages of 17 and 21, and many stay for their entire careers. Immigration has been a steady, but minor source of supply for this group, accounting for no more than 10% of the number entering the trade workforce via apprenticeship. Many in this field become construction foremen/women after acquiring broad experience, while others become their own employers by forming contracting businesses.

Market Conditions and Job Prospects

Employment in the piping trades is determined by the volume of new construction requiring piping installation and by the existing stock of piping that must be maintained. The latter provides a relatively recession-proof employment base for the trade. Work on new construction is cyclical, so trades-people specializing in construction are more likely than others to experience unemployment during recessions. Offsetting this is a potential for greater earnings in construction when activity is brisk.

Construction activity in Canada is expected to remain vigorous through the 1990s, although cyclical slowdowns will probably occur occasionally during the decade. During the early 1990s, construction activity is projected to be led by non-residential investment, particularly in Central Canada where industrial and commercial construction should be high. In the mid-1990s resource-based construction is expected to experience the greatest growth, while later in the decade, residential construction is projected once again to undergo growth. Consequently, employment opportunities for the piping trades should remain plentiful, although there will be some regional variation and it is therefore advisable for people entering apprenticeships in the piping trades to complete the requirements of the Interprovincial Seal Program. This provides for recognition of apprenticeship training in other provinces.

As is the case in most of the construction occupations, employment in the piping trades is subject to some seasonal variation. However, since most piping work is indoors or sheltered, seasonality is not pronounced.

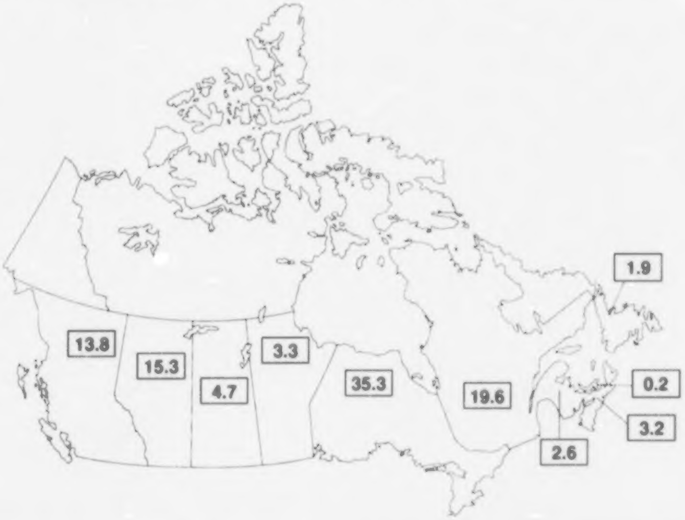
1985 Annual Earnings	$	
Lowest 10% of Workers	14,561	or less
Average Worker	28,615	
Highest 10% of Workers	41,776	or more

Source: 1986 Census

Ironworkers or Structural Metal Erectors 8793

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	6,377	-3.7	0.1	5,990
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	25	68	7	93	7
	1986	99	1	15	76	9	89	11
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (55)	Manufacturing (24)	Transport & Communications & Utilities (10
	- Metal Fabricating (14)	- Electric Power (5)
	- Primary Metals (4)	- Rail Transport (3)
	- Machinery (2)	- Miscellaneous Transport (2)

Ironworkers or Structural Metal Erectors

8793

Job Environment

Ironworkers fabricate and erect structural steel assemblies, such as the steel frames of buildings, bridges and storage tanks; they also shape and assemble reinforcing rods used in the preparation of reinforced concrete.

In erecting steel assemblies, structural ironworkers work according to detailed plans. The work is generally broken into stages with separate teams performing each function. As a job progresses, any one team member may perform all phases of the work on a rotating basis. Structural ironworkers perform many of their duties at heights, where there is considerable danger of falling or of being hurt by falling objects, and they are often exposed to adverse weather conditions. Reinforcing ironworkers construct the steel latticework around which concrete is poured, and this work can be heavy and dangerous.

Ironworkers work on a project-by-project basis and frequently travel long distances from job to job. Many are members of construction unions and work out of union hiring halls where work is allocated on a rotating basis.

Educational Background and Skills

Apprenticeship programs in ironwork are offered in Quebec, Ontario, Alberta and British Columbia. They range in duration from two years in Quebec to three years in Ontario, Alberta and British Columbia. In addition, Quebec offers a one-year apprenticeship in reinforcing ironwork, for which there is no educational requirement. Certification of ironworkers is compulsory in Quebec.

Prospective ironworkers should be agile and in excellent physical condition and they should have a good sense of balance. They also must not be afraid of heights and must unfailingly maintain safe working conditions. The work can be heavy, requiring good strength and stamina.

Nature of Supply

Almost all workers in the ironwork trade are male, although women should consider this occupation when making career choices. In 1986, this workforce was more "middle-aged" than the average of all occupations. Most people enter this trade between the ages of 17 and 28, and many have had previous work experience. Immigration has provided a steady, but minor flow of experienced workers to the trade.

In 1986, 79% of ironworkers were employed on a full-time basis.

Market Conditions and Job Prospects

The principal activity of ironworkers is on-site construction, most of which is carried out on a contract basis by the construction industry. The employment of structural ironworkers has been adversely affected by a continuing substitution of concrete for structural steel in new construction, although the need for reinforcing ironworkers should be intensified by this trend. Projections of construction activity call for a continued high level of spending on industrial and commercial construction in Central Canada at least until the mid-1990s, at which time resource-based construction is expected to grow. Employment conditions will vary by region. Job openings will also result from replacement needs due to retirements and career changes.

There is a degree of seasonality in the employment of ironworkers, and employment levels are sensitive to economic conditions.

1985 Annual Earnings	$	
Lowest 10% of Workers	15,480	or less
Average Worker	29,768	
Highest 10% of Workers	43,949	or more

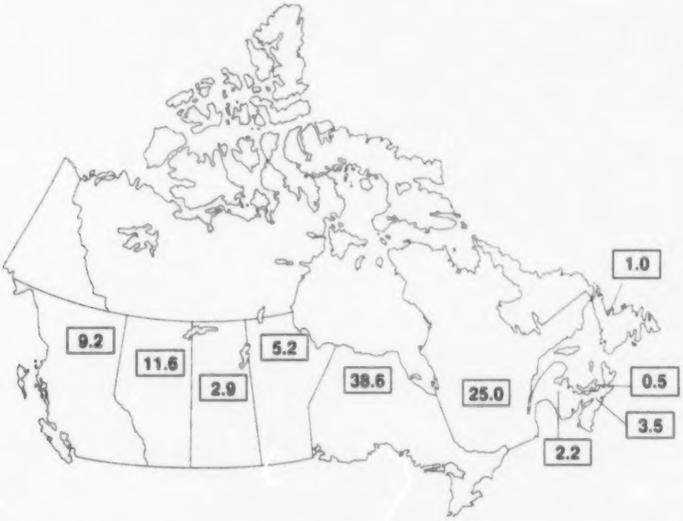
Source: 1986 Census

Glaziers

8795

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	8,061	5.1	4.6	11,057
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	96	4	35	60	5	94	6
	1986	96	4	24	70	6	92	8
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Construction (42)

Trade (36)
- Retail (29)
- Wholesale (7)

Manufacturing (20)
- Metal Fabricating (7)
- Non-Metal Mineral Products (6)
- Wood (3)

Glaziers

8795

Job Environment

Glaziers cut and install glass (including decorative stained glass windows, mirrors and other forms of glass) for use as windows and fixtures in buildings.

Glaziers work in a variety of environments. Structural glass installers work on the outside of large buildings on scaffolds or moveable platforms, guiding and positioning glass as it is raised by a crane. Factory glaziers cut and install glass in wooden or metal frames for such products as prefabricated windows and patio doors, shower stalls and glass display cases. Custom work, ranging from replacing the glass in an odd-sized window or storefront to creating stained glass patterns, may be performed in a factory, in a retail location or on site. Installers of automobile glass are also included in this category.

Educational Background and Skills

Glaziers use many types of tools, including glass cutters, putty knives, power drills and grinders. Those working on commercial buildings must be prepared to work at great heights, often in poor weather, and must be strong enough to manoeuvre heavy sheets of glass into place. Those working with stained and decorative glass require artistic aptitude.

All provinces west of Quebec have apprenticeship programs for glaziers, consisting of four years of on-the-job training and 22 to 24 weeks of classes. (British Columbia requires only 12 weeks of classes.) Completion of Grade 9 or Grade 10 is usually required for acceptance into a program.

Nature of Supply

In 1986, 96% of glaziers were male. The workforce in the glazing trade has a slightly greater proportion of younger workers and a smaller proportion of older workers than the average for all occupations. People enter this trade in their early or mid-20s, and many remain in this field for their entire careers.

Market Conditions and Job Prospects

Employment of glaziers is projected to grow at a rate above the average over the 1989-to-1995 period. In new construction, the volume of available work is expected to slow as residential construction weakens over the next decade, but continuing healthy levels of commercial and industrial construction should provide ample employment. Replacement of workers lost through attrition will provide the majority of job openings.

Construction accounts for over 40% of employment of glaziers, followed by the wholesale-retail trade and manufacturing industries; a recent trend to the use of prefabricated windows and glass doors in buildings has boosted installation work for carpenters at the expense of glaziers.

Since job opportunities for glaziers are dependent upon activity in the construction industry, which is very sensitive to changes in economic conditions, glaziers can expect periods of unemployment during economic downturns. Those who work in construction can also expect some seasonal unemployment, since construction activity slows in the winter months.

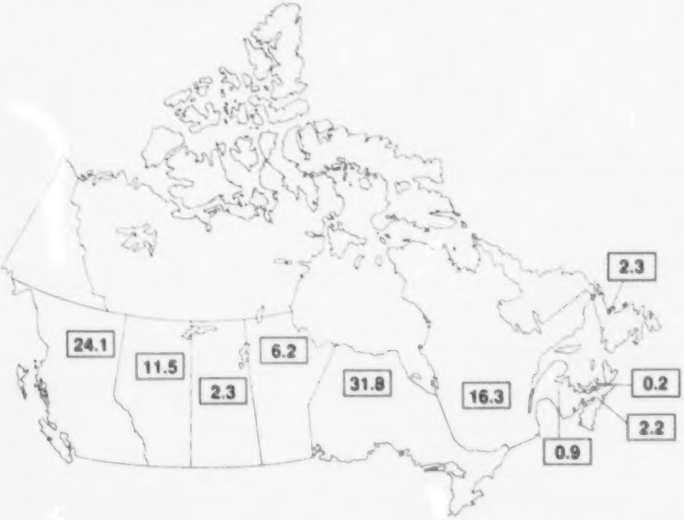
1985 Annual Earnings	$	
Lowest 10% of Workers	11,413	or less
Average Worker	22,602	
Highest 10% of Workers	34,595	or more

Source: 1986 Census

Air Pilots, Navigators and Flight Engineers 9111

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	7,567	-1.3	1.2	2,114
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	14	81	5	95	5
	1986	96	4	6	88	6	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (83)
- Air Transport (81)

Manufacturing (3)
- Aircraft & Parts (2)

Services (3)
- Business (1)

Air Pilots, Navigators and Flight Engineers

9111

Job Environment

This occupational group includes pilots-in-command, flight engineers and helicopter pilots. Flight engineers operate and monitor the various electronic and mechanical systems on large aircraft. Pilots are responsible for the safe operation of aircraft, which requires such tasks as preparing flight plans, monitoring weather conditions and system functions, and checking the aircraft exterior. They must have a knowledge of meteorology, a working knowledge of aircraft engines, instruments and radio equipment, and navigation skills. Their job requires them to be away from home for days at a time.

Helicopter pilots can choose from a variety of jobs, including aerial photography, surveying, fire-ranging, crop dusting, marine rescue and transportation of business executives and hospital patients. These pilots may work long, irregular hours.

Educational Background and Skills

Completion of secondary school is usually required to become a pilot. Candidates must obtain a commercial pilot's licence and a radio-telephone operator's certificate before being licensed by Transport Canada.

Nature of Supply

This field is dominated by men, although their proportion of this work force has been declining slowly since 1971. The majority of licensed commercial air pilots work in Ontario, British Columbia (which has a disproportionately high number) and Quebec. Most individuals enter the occupation between the ages of 25 and 29 and begin to leave, in significant numbers, between the ages of 45 and 49, for an average career span of 20 years. The proportion of pilots over 54 is well below the average for other occupations, although this may change as pilots choose to work longer.

Market Conditions and Job Prospects

Employment growth for pilots was moderate during the 1970s, but declined during the early 1980s as a result of the 1981 recession. Deregulation within the air transport industry has created a large short-term demand for pilots in both the U.S. and Canada.

Employment in this group is susceptible to fluctuations in the economy. Technological changes in the workplace have sometimes favoured employment but never harmed it. While most pilots work in the air transport service industry, a number of helicopter pilots are found in public administration, forestry, mining and the oil and gas industries.

The career path of commercial pilots leads from flight engineer through co-pilot to captain, who has responsibility for most of the flying.

Earnings

There is tremendous variation in pilots' earnings. Pilots flying large aircraft on international flights earn the most, while secondary officers with small domestic airlines earn the least. Annual salaries depend on a number of factors, including aircraft speed and gross weight, and whether flights involve day or night flying.

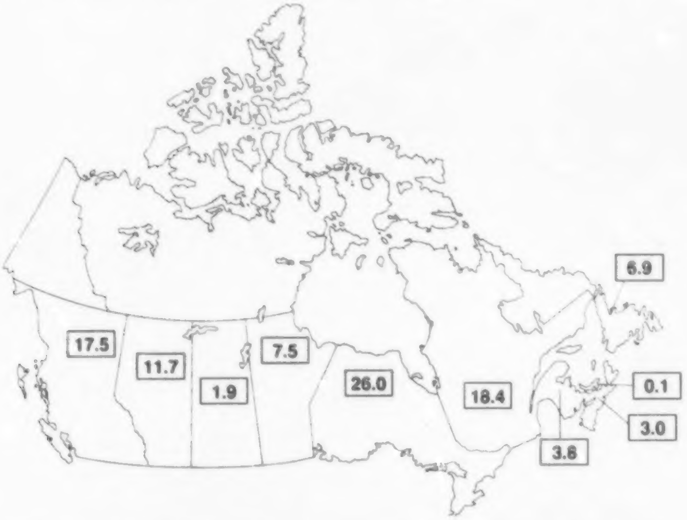
1985 Annual Earnings	$	
Lowest 10% of Workers	22,124	or less
Average Worker	56,622	
Highest 10% of Workers	N/A	

Source: 1986 Census

Air Transport Operating Support Occupations 9113

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,794	-2.9	0.3	3,469
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	91	9	20	75	5	96	4
	1986	89	11	11	83	6	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (81)
- Air Transport (80)

Public Administration (13)
- Federal (11)
- Provincial (1)

Trade (2)
- Wholesale (2)

Air Transport Operating Support Occupations 9113

Job Environment

This occupational group, which includes air traffic controllers, flight dispatchers, crew schedulers and airline radio operators, is responsible for aircraft ground support. This involves provision of flight services, control of aircraft movement, analysis and compilation of weather reports and other flight plan information, and radio communication with aircraft crews.

Educational Background and Skills

To qualify as a flight dispatcher or air traffic controller, candidates must be in good health and possess a secondary school diploma. They must also undergo preparatory training in meteorology, navigation, communication procedures, aircraft performance and air regulations. A further two to four years of on-the-job training in a junior position are required before the candidate may obtain a licence or certificate. Flight dispatchers receive their certificates from an airline, while air traffic controllers are licensed by Transport Canada after attaining a requisite level of experience and passing a qualifying examination.

Nature of Supply

The major sources of supply for this occupation are the education system and the military.

Although this occupation is still dominated by men, female representation has been increasing over the past few years. The heaviest concentration of flight dispatchers and air traffic controllers is in British Columbia, Quebec and Ontario. Most people enter this occupation between the ages of 25 and 29 and begin to leave between the ages of 40 and 44, for a shorter-than-average career span of 15 years. The proportion of those under 25 has been decreasing in recent years.

Market Conditions and Job Prospects

Air traffic controllers comprise almost 40% of this group. Transport Canada reports a severe shortage of controllers which is expected to continue for the next few years despite recent increases in training capacity. Employment growth for all these professions is expected to be much slower than the average, a departure from the slightly higher-than-average growth of the 1970s. Between 1989 and 1995, 3,300 job openings will result from the need to replace personnel leaving the workforce because of death, retirement, or to return to the education system or the household.

Employment in air transport support occupations is sensitive to general economic conditions and changes in transportation and policy regulations. There is little seasonal variation in employment and little part-time work.

1985 Annual Earnings	$	
Lowest 10% of Workers	20,725	or less
Average Worker	36,958	
Highest 10% of Workers	57,375	or more

Source: 1986 Census

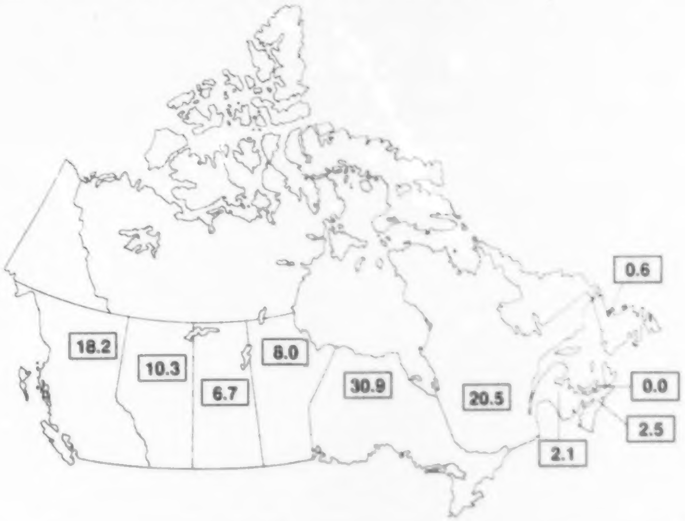
For further information, contact:

Canadian Air Traffic Control Association
Suite 1100, 400 Cumberland
Ottawa, Ontario K1N 8X3
(613) 232-9413

Locomotive Operating Occupations 9131

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	5,737	-5.7	-1.4	3,397
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	9	65	26	99	1
	1986	98	2	4	73	23	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (93)
- Rail Transport (90)

Manufacturing (4)
- Primary Metals (2)

Mining (1)
- Metals (1)

Locomotive Operating Occupations

9131

Job Environment

Besides locomotive engineers, this grouping includes yard engineers, road freight engineers, switch engineers and motor operators. Locomotive engineers drive diesel or electric trains. Additional responsibilities include test driving and hooking up trains before a trip, checking safety features, monitoring information about the trip route and reporting damage and needed repairs.

Educational Background and Skills

Locomotive engineers must be 21 years of age or older and be in sound mental and physical health. A high school diploma is usually required. Candidates begin their training as yard workers, progressing to the positions of brake worker and conductor before becoming locomotive engineers. This process can take from two to four years, during which time the candidate must meet medical requirements and pass a series of mechanical examinations and an examination on operating rules. Locomotive engineers require a natural mechanical ability, quick reflexes and good judgement, and must be constantly alert and attentive.

Nature of Supply

The vast majority of people in this occupation are men (98%), with most working in Ontario and Quebec. The average age (41) is relatively high, reflecting a below-average concentration of people in the 15-to-24 age group. This is a result of the need for previous experience before entering this group, and of declining employment opportunities, which has reduced the number of openings for younger people.

Market Conditions and Job Prospects

Employment conditions for this group can only be labelled bleak. The total level of employment between 1981 and 1986 fell by over 1,500 positions. This is largely the result of increased competition from other forms of transportation (due, in part, to deregulation of both freight and passenger services). The outlook over the forecast period is only slightly brighter, with the contraction of employment slowing down. Hirings resulting from replacement of personnel lost through death and retirement are expected to be above average due to the age profile for this occupation and will account for all upcoming job opportunities.

Employment of locomotive engineers is largely confined to the rail transportation industry and, consequently, is very sensitive to fluctuations in the overall business climate and government policy. Seasonal variation has little effect on employment, and part-time work is scarce compared with other occupations. Changing technology in the workplace has had an ambiguous impact on employment; some changes have added to the workload of engineers, while others have reduced the need for their services.

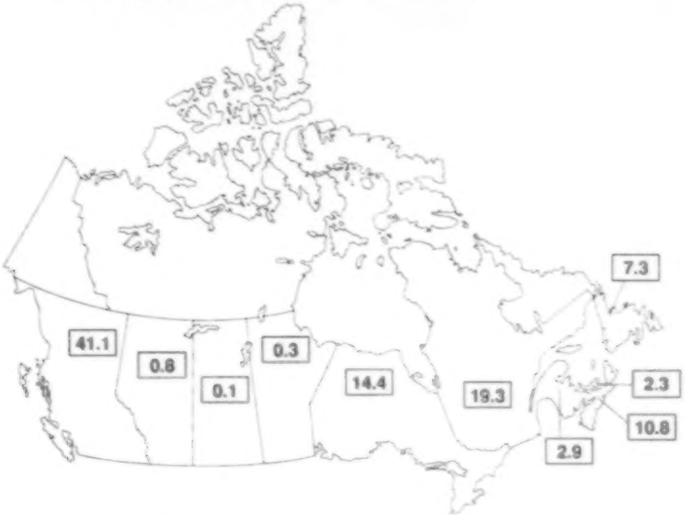
1985 Annual Earnings	$	
Lowest 10% of Workers	25,700	or less
Average Worker	38,121	
Highest 10% of Workers	50,488	or more

Source: 1986 Census

Deck Officers 9151

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,548	-2.5	-1.0	2,999
All Occupations	12,434,282	1.5	1.5	8,062,668

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	98	2	8	74	18	96	4
	1986	97	3	8	71	21	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (75)
- Water Transport (72)
- Miscellaneous Transport (2)

Public Administration (14)
- Federal (12)

Services (3)
- Education (1)

Deck Officers

9151

Job Environment

Deck officers include ship's masters, mates, pilots, navigators and other officers, who operate ships or self-propelled vessels to transport passengers or cargo on oceans, in coastal areas and on inland waters. They set the ship's course, use navigational aids, supervise operations, inspect cargo movement and manage the deck crew. They work long, variable hours and travel for extended periods. On board ship, the work area is typically indoors and in confined spaces.

Educational Background and Skills

Completion of Grade 12 is now the basic entrance requirement. The minimum certification for a deck officer is the Watch Keeping Mate (WKM) certificate which can be obtained either by completion of a 3-year cadet-program from an approved nautical school, or by having a minimum of 24 months' sea experience as a deck crew member. Prospective officers must then pass Transport Canada's examination for the WKM certificate.

For ferry boat deck officers the minimum certification is the First Mate Ferry Steamship certificate.

Nature of Supply

At the time of the 1981 census and again in 1986 most deck officers were men, working mainly in British Columbia (41%) and Quebec (19%). The highest concentration of officers, relative to the population base, was in Nova Scotia (11%) and Newfoundland (7%). The majority of individuals enter these occupations between the ages of 25 and 29 and begin leaving between 55 and 59, for an average career of 30 years.

Market Conditions and Job Prospects

Employment growth in this group was moderate during the 1970s but has since declined. Projected growth is below the national average. Hirings resulting from the replacement of workers lost through death and retirement are expected to be higher than the average (because of the high proportion in the 55-plus age group) and will make up a large proportion of the 3,000 jobs anticipated over the projection period (1989-1995).

Although labour market conditions for deck officers in 1986 improved over the preceding few years, they are still less favourable than before the 1981-1982 recession. This group continues to have a higher-than-average unemployment rate. Because of its concentration in the water transportation industry, employment in this group fluctuates with the economic climate. Seasonal variation is another trend, with higher employment in the summer and fall.

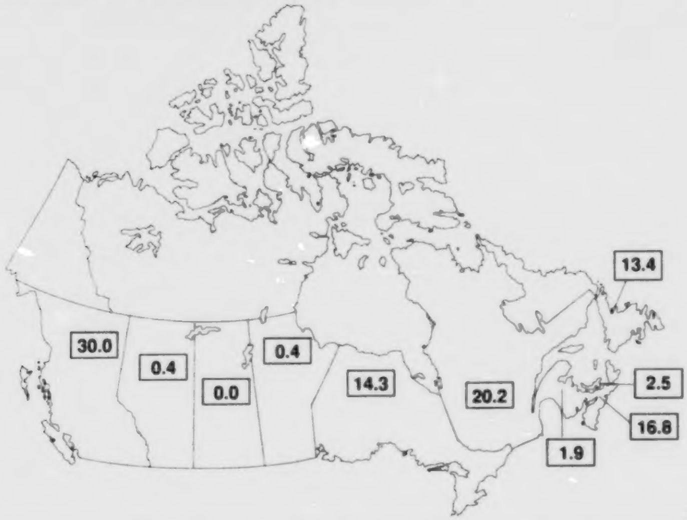
1985 Annual Earnings	$	
Lowest 10% of Workers	23,748	or less
Average Worker	41,750	
Highest 10% of Workers	64,098	or more

Source: 1986 Census

Engineering Officers, Ship 9153

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	2,570	-1.4	-0.4	1,808
All Occupations	12,434,282	1.5	1.5	8,062,668

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	7	73	20	97	3
	1986	98	2	10	70	20	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (66)
- Water Transport (65)

Manufacturing (12)
- Food & Beverages (6)
- Shipbuilding & Repair (3)
- Petroleum & Coal Products (1)

Public Administration (10)
- Federal (8)
- Provincial (2)

Engineering Officers, Ship

9153

Job Environment

This occupational group includes engineering assistants mechanics as well as marine engineer officers. The latter operate and repair the main ship engines, supervise and coordinate the activities of the engine room crew and inspect the engines and other mechanical and electrical equipment. The work takes place in cramped conditions and involves exposure to noise, odours and hazards requiring the use of safety equipment and clothing.

Educational Background and Skills

The minimum educational requirement for this occupation is secondary school graduation. Engineer officers must complete a three-year community college program in marine engineering technology; or obtain four years of experience as a machinist in marine engineering; or obtain three to four years of experience in a ship's engine room as an oiler, fireman, engineer assistant or mechanic. Certification is compulsory and is awarded by the Canadian Coast Guard. New safety standards adopted by the industry require additional training for these positions.

Nature of Supply

The main sources of supply to this field are individuals undergoing on-the-job training and community college graduates specializing in mechanical engineering. Engine room crew with sufficient engine-room experience and additional training may write the fourth class certificate.

This occupation is overwhelmingly male and is most heavily represented in British Columbia (30%). The majority of engineer officers enter the occupation between the ages of 25 and 29 and leave between 50 and 54, for a slightly shorter-than-average career of 25 years. The proportion under 25 has been increasing since 1981.

Market Conditions and Job Prospects

Employment growth in this group was below average during the 1970s and 1980s. While labour market conditions improved slightly in 1986, they still remain less favourable than they were before the 1982 recession. Projected employment growth is much lower than average, with most opportunities arising from the need to replace personnel leaving this workforce.

Employment in this group is susceptible to fluctuations in the economy. Seasonal variation is above average, with employment peaking during the summer months. Changing technology, while making the marine engineer's job easier, is not likely to affect employment levels.

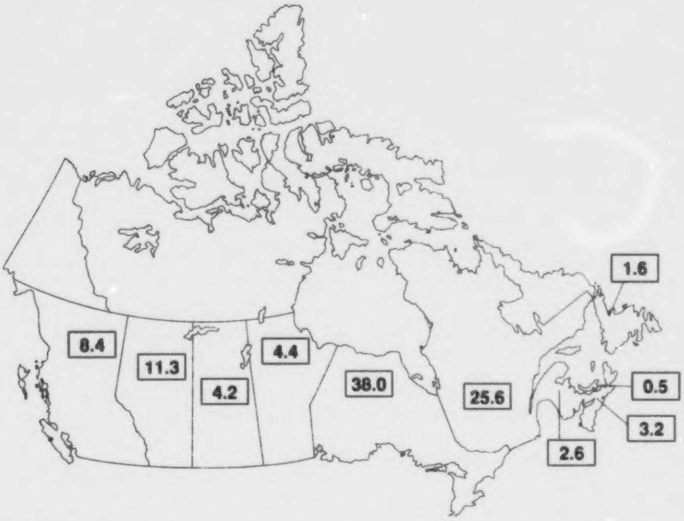
1985 Annual Earnings	**$**	
Lowest 10% of Workers	**22,345**	**or less**
Average Worker	**37,196**	
Highest 10% of Workers	**56,221**	**or more**

Source: 1986 Census

Bus Drivers 9171

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	57,139	1.9	1.1	20,394
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	75	25	6	77	17	79	21
	1986	71	29	4	79	17	74	26
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (81)
- Miscellaneous Transport (46)
- Urban Transit (35)

Services (15)
- Education (14)

Public Administration (2)
- Municipal (2)

Bus Drivers

9171

Job Environment

This occupational group includes all types of bus drivers, from those in public and private transportation companies to school-bus drivers. Besides transporting passengers, they collect fares, keep clerical records and answer questions from passengers about scheduling and bus routes. Their work environment is usually a clean, well-lit, heated vehicle, although in some geographical locations weather is a factor. As junior personnel, bus drivers work in shifts, including split ones.

Educational Background and Skills

Secondary school graduation is not a prerequisite for this occupation. However, prospective drivers must be at least 21 years of age, in good health and possess a valid driver's licence as well as a good driving record. They must pass qualifying examinations, undergo a three- or four-week on-the-job training program and obtain the appropriate provincial licensing. Bus drivers should be emotionally stable, patient and able to deal pleasantly with all types of people.

Nature of Supply

The major sources of entrants to this occupation are secondary school graduates and people coming into the labour force from the household sector. The flow into this occupation from related ones roughly matches the flow of people out of the occupation.

Although this group has been male-dominated in the past, more women became drivers in the 1970s and early 1980s. Most drivers work in Quebec and Ontario. The majority of bus drivers enter the occupation between the ages of 30 and 34 and begin to leave between 60 and 64, for an average career span of 30 years. The average age increased marginally between 1981 (41 years of age) and 1986 (42).

Market Conditions and Job Prospects

Growth in employment was slightly greater than the average for all occupations over the 1981-to-1989 period. However, volatility was also present. The relative instability resulted from the fact that demand depends on the volume of commuters which in turn is dependent on both employment levels and budget restraints in government. In spite of the volatility, unemployment has been quite low due to the job security enjoyed by successful entrants.

Over the 1989-to-1995 period, employment is expected to grow at a slightly less than average rate since demand is dictated by budgetary constraints and the size of the urban workforce. Seasonal variation will likely continue, especially for school bus drivers who mainly work part-time.

Changing technology has not affected employment in this occupation, as so far there is no substitute for a human driver. Drivers who display leadership abilities are normally promoted to inspectors, dispatchers, traffic supervisors or into administrative positions.

Economic conditions over the 1989-to-1995 period are expected to allow employment to grow at slightly less than the average rate of all occupations. The number of jobs created over this period should be approximately 20,000, with three-quarters of them resulting from employees retiring, dying or leaving the occupation.

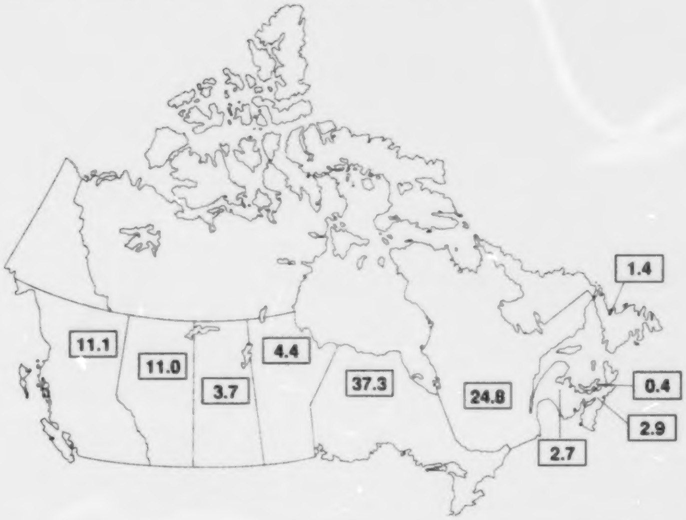
1985 Annual Earnings	$	
Lowest 10% of Workers	12,342	or less
Average Worker	26,844	
Highest 10% of Workers	38,314	or more

Source: 1986 Census

Truck Drivers 9175

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	223,346	-1.3	1.7	92,930
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	97	3	23	69	8	90	10
	1986	97	3	17	73	10	88	12
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (43)
- Miscellaneous Transport (39)
- Water & Other Utilities (2)

Trade (20)
- Wholesale (12)
- Retail (8)

Manufacturing (15)
- Food & Beverages (5)
- Non-Metal Mineral Products (3)
- Wood (1)

Truck Drivers

9175

Job Environment

This occupational group includes city pick-up and delivery drivers, large-truck and tractor-trailer drivers and those who drive special trucks such as dump trucks or tow trucks. Truck drivers work in firms that maintain their own fleets for internal use (private trucking), or in firms which haul goods for others (for-hire trucking). Truckers may also own their trucks (owner-operators) and broker their services either to the private or the for-hire sectors. They may also have a wide range of duties in addition to driving a truck, such as planning schedules, logistics and just-in-time deliveries; completing log books and documents required for border crossings; and learning how to use new technologies that affect the industry. Loading and unloading is usually handled by terminal and warehouse workers, but may sometimes be required of the driver. Truck drivers may also need to know safety regulations, dangerous goods regulations, first aid, the rules of the road and defensive driving. The work week varies from 40 to 60 hours, and working conditions are generally no more hazardous than in other industrial occupations.

Educational Background and Skills

Truck drivers should be at least 18 years of age and have a Grade 10 education, a good driving record and preferably some training in automotive mechanics. Drivers of light trucks require a minimum of one year of basic driving experience. Drivers of heavy trucks require a minimum of three to five years of light-truck driving experience. Licencing requirements vary with the province and the size of the truck, with some provinces enforcing rigid medical standards and requiring proof of the ability to handle specific types of trucks and combination vehicles. Various provincial trucking associations, safety organizations, vocational schools and private trucking organizations conduct training courses for prospective truck drivers.

Nature of Supply

Many move into this occupation from positions such as yard worker or dock handler with a transport company or private fleet; immigration and the military are minor sources of supply.

This field is overwhelmingly male, although the number of women drivers is expected to rise. The majority of drivers work in Quebec (26%) and Ontario (34%), and the average age (36) and age structure have changed only marginally since 1981. Most individuals enter the occupation between the ages of 20 and 24 and begin to leave between 40 and 44, for a typical career of 20 years — slightly less than the average.

Market Conditions and Job Prospects

Trucking is very sensitive to changes in the economy, particularly in the construction and manufacturing sectors. Employment for truck drivers stagnated over the 1981-to-1989 period. Deregulation in the transportation industry stifled growth over the decade, but this masks problems in recruiting qualified drivers for parts of the industry. Over the 1984-to-1988 period unemployment counts were high. Nevertheless, chronic shortages of skilled, qualified drivers persist in specific sub-sectors of the industry.

Over the 1989-to-1995 period, employment growth is expected to be average, with the construction, manufacturing and trade sectors contributing the most to demand. The number of job openings should approximate 93,000, with slightly more than two-thirds arising from existing employees retiring, dying or leaving the occupation for other reasons.

Technological advances are changing the face of the industry, as computers and satellite tracking systems attain more widespread use: effective communication skills may be as important for the trucker as driving skills or a knowledge of safety regulations.

1985 Annual Earnings	$	
Lowest 10% of Workers	12,321	or less
Average Worker	25,146	
Highest 10% of Workers	38,416	or more

Source: 1986 Census

For further information, contact:

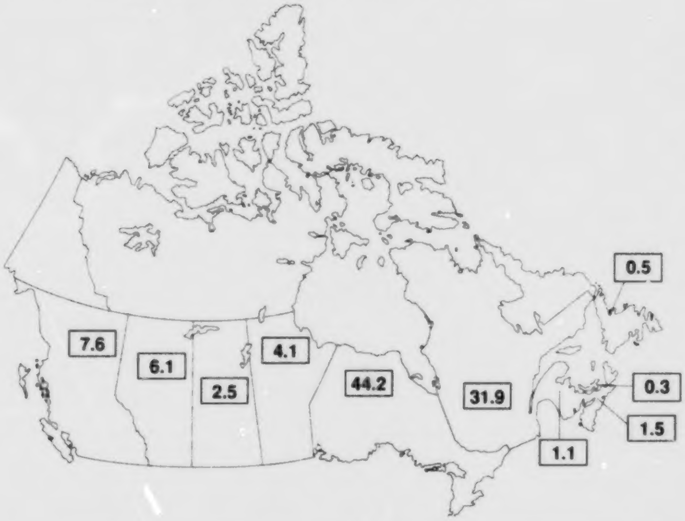
Canadian Trucking Association
Suite 300, 130 Albert Street
Ottawa, Ontario K1P 5G4
(613) 236-9426

Printing Press Occupations

9512

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	24,823	1.2	1.1	10,861
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	90	10	28	65	7	95	5
	1986	88	12	19	72	9	93	7
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (88)
- Printing & Publishing (80)
- Paper Products (4)

Services (6)
- Education (3)
- Business (2)

Public Administration (2)

Printing Press Occupations

9512

Job Environment

Commercial press operators, job printers, and newspaper press operators are some of the occupations in this group. Press operators set up and run sheet, web-fed offset, letterpress, gravure, flexographic and other presses. Their work in preparing a press may include transferring a photographed image to a printing plate, installing the plate on the machine, applying ink to the plate and sometimes making fine mechanical adjustments. During the printing run the operator observes and controls the press, monitoring the quality of printing. On a large press, the operator may supervise other workers.

Educational Background and Skills

Although prospective operators can obtain their basic preparation in high school, additional training is available through community college programs and through apprenticeship programs usually lasting three to four years.

Nature of Supply

The major sources of supply to this occupation are graduates from secondary school and apprenticeship programs. Labour force re-entrants, immigrants and post-secondary graduates are also potential sources of supply. The number of people leaving these occupations for related ones is expected to marginally exceed the number coming from other occupations and suggests that, for many, these occupations represent entry-level positions in their careers.

Most press operators are men working in Ontario and Quebec. The average age (35) as well as the age structure of this occupation has remained relatively stable since 1981. A typical career as a printing press operator lasts, on average, 35 years, with entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Employment growth for printing press operators was slightly less than the average for all occupations over the 1981-to-1989 period. The relative stability results from a similar stability in demand for printed materials.

Since the early 1980s, employment in the occupation has grown at slightly below the average, with only a moderate rise in demand as economic conditions improved. The stability of this occupation is also reflected in the almost constant levels of unemployment.

Over the 1989-to-1995 period employment is expected to continue to grow at a rate slightly less than average. Demand is fairly constant regardless of the business cycle as expenditures on books and magazines vary only marginally.

Employment trends differ for the various printing specialties. Little growth is anticipated for lithographic press operators, because offset lithography is now the main process used in the commercial printing industry. Likewise, employment growth in the area of flexographic printing (used in the production of flexible packaging and in imprinting) is expected to be modest. Traditional printing processes that incorporate certain aspects of lithography are not likely to stimulate employment in the future. Letterpress printing has declined and will not contribute significantly to employment growth in this field.

In general, economic conditions predicted for the 1989-to-1995 period suggest that employment will grow at a slightly less-than-average rate, similar to growth over the 1981-to-1989 period. The number of jobs created should be approximately 11,000, with more than three-quarters resulting from vacancies due to retirements or deaths among current employees.

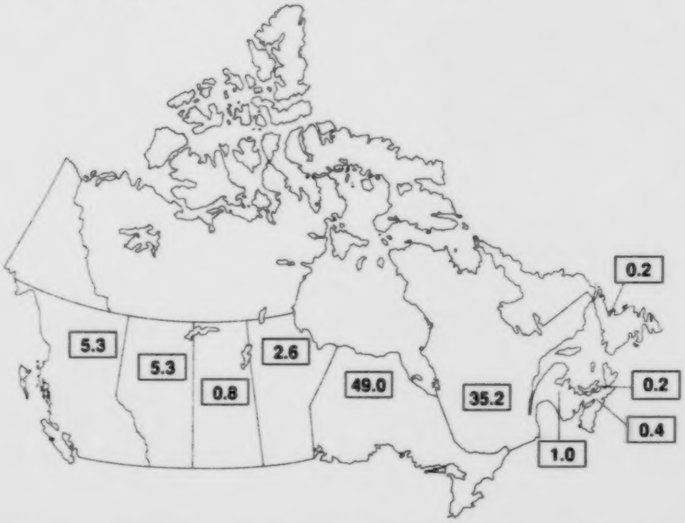
1985 Annual Earnings	$	
Lowest 10% of Workers	12,594	or less
Average Worker	25,764	
Highest 10% of Workers	41,238	or more

Source: 1986 Census

Photoengraving and Related Occupations 9515

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	2,715	0.6	1.3	1,235
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	83	17	22	70	8	94	6
	1986	84	16	17	71	12	95	5
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (91)
- Printing & Publishing (85)
- Paper Products (3)
- Miscellaneous (1)

Services (6)
- Business (4)
- Miscellaneous (1)

Trade (1)
- Wholesale (1)

Photoengraving and Related Occupations

9515

Job Environment

This occupational group includes photoengravers, scanner operators, camera operators, layout workers and platemakers. The preparation of printing plates involves photography, the separation of colours by means of an electronic scanner, stripping, etching and proofing. The work is meticulous and demands great concentration, and is often performed by a team of photoengravers.

Educational Background and Skills

To enter this occupation individuals generally study graphic arts technologies at the community college level or take an apprenticeship program lasting about four years. The apprentice may be required to complete courses in printing or graphics at a community college or trade/vocational school.

Nature of Supply

The secondary school system and apprenticeship programs are the main channels into this occupation. The post-secondary education system, labour force re-entrants and immigrants also augment the labour supply. Movement out of these occupations into related ones will marginally exceed the influx from other occupations, suggesting that for many, these jobs represent entry-level positions in their careers.

Men continue to outnumber women in this occupation. The majority of photoengravers are located in Ontario and Quebec. The average age (37) has risen since 1981.

Market Conditions and Job Prospects

Employment growth for photoengravers was less than average over the 1981-to-1989 period. Their slow growth is largely the result of the gradual technological changes that are taking place. Between 1989 and 1995, employment is expected to again grow at a rate slightly below average but still faster than in the 1980s. The number of jobs created should approximate 1,200, with the bulk arising from existing employees retiring, dying or leaving the occupation for other reasons.

Employment is relatively insensitive to changes in economic conditions, although advances in technology have made retraining necessary at certain stages of the photoengraving process. Employment growth is expected for photoengravers who specialize in laser technology and for electronic prepress technicians, who operate computer-controlled devices that perform four-colour stripping and retouching operations. There is no seasonal pattern of employment and very little part-time work.

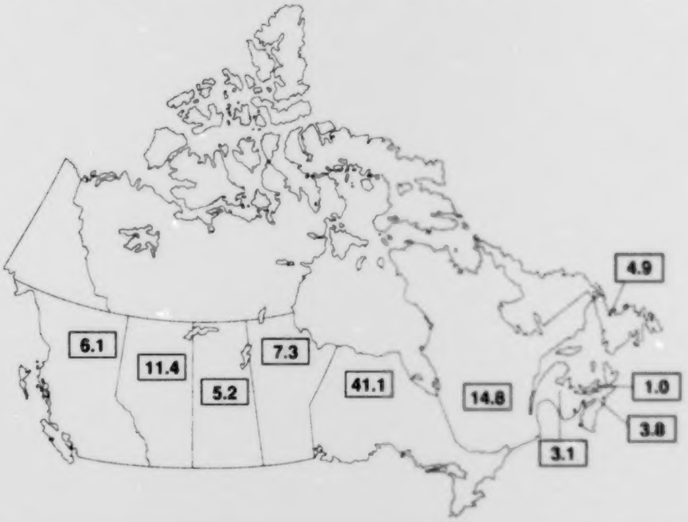
1985 Annual Earnings	$	
Lowest 10% of Workers	14,123	or less
Average Worker	28,954	
Highest 10% of Workers	43,499	or more

Source: 1986 Census

Power Station Operators 9531

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	7,398	-0.3	1.4	3,459
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	95	5	18	71	11	97	3
	1986	96	4	8	81	11	98	2
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (68)
- Electric Power (63)
- Water & Other Utilities (1)
- Telephone & Telegraph (1)

Manufacturing (15)
- Chemicals & Chemical Products (4)
- Pulp & Paper (2)
- Primary Metals (2)

Services (6)
- Hospital (3)
- Education (1)
- Business (1)

Power Station Operators

9531

Job Environment

This group includes power station operators in thermal, hydro, nuclear and diesel electric generating plants, and power system operators who control the transmission and distribution of power in electrical networks. Their responsibilities include operating remote-control substations, stand-by generating plants and electrical power conversion systems, which involves monitoring and adjusting controls, inspecting equipment and performing other duties specific to each facility.

Educational Background and Skills

A power station or power system operator must be technically competent and safety conscious. The minimum educational requirement in this occupation is secondary school graduation.

Additional training, which usually takes the form of an apprenticeship program of three to five years, is required for some specializations, such as nuclear power. Most individuals enter this occupation only after acquiring related experience.

Nature of Supply

The major sources of supply to this occupation are apprentices and individuals who move into this occupation from related ones. Other sources of supply include post-secondary graduates, labour force re-entrants and immigrants.

Most power station operators are men and most work in Ontario and Quebec.

The average age (38) in this occupation has remained fairly stable since 1981, despite a decrease in the number of people under age 25. A power station operator's career normally spans 25 to 30 years and usually begins between the ages of 20 and 30.

Market Conditions and Job Prospects

Employment of power station operators declined during the 1980s, largely the result of technological change. The poor performance did not result in higher unemployment since members of this group were successful in finding employment in other occupational groups.

Over the 1989-to-1995 period, employment is expected to grow at an average rate. Approximately 3,400 jobs will become available, with slightly more than three-quarters arising from existing employees retiring, dying, or leaving the occupation for other reasons. Since employment of power station operators is concentrated in the electric power industry it is partially dependent on foreign electricity demand (primarily from the United States). Should such demand slacken, however, job prospects could weaken in the long term. There are no strong seasonal employment patterns in this field and the incidence of part-time work is insignificant.

1985 Annual Earnings	$	
Lowest 10% of Workers	24,364	or less
Average Worker	37,975	
Highest 10% of Workers	51,546	or more

Source: 1986 Census

For further information, contact:

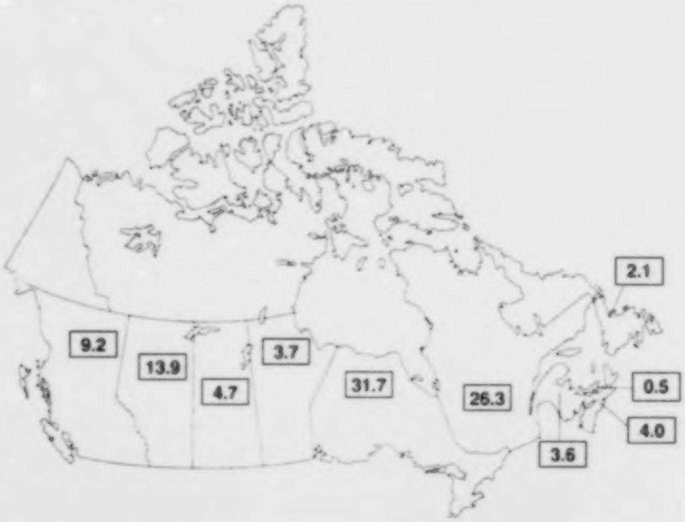
International Brotherhood of Electrical Workers
Suite 401, 45 Sheppard Ave. East
Willowdale, Ontario M2N 5Y1
(416) 226-5155

Stationary Engine and Utilities Equipment Operating and Related Occupations

9539

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	29,307	-2.1	-1.5	7,799
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	99	1	15	66	19	96	4
	1986	98	2	10	73	17	96	4
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Manufacturing (36)
- Pulp & Paper (8)
- Food & Beverages (6)
- Chemicals & Chemical Products (4)

Transport & Communications & Utilities (19)
- Water & Other Utilities (8)
- Electric Power (5)
- Pipelines (2)

Services (15)
- Hospital (6)
- Education (5)

Stationary Engine and Utilities Equipment Operating and Related Occupations

9539

Job Environment

Air-conditioning operator, gas-compressor operator, stationary engineer and pipeline gauger are typical occupations in this group. Stationary engineers operate and maintain such equipment as steam turbines, steam boilers, instrumentation and process controls, air compressors, refrigerating systems, water conditioning systems, and efficient control and chemical recovery systems. They are also responsible for power and process operation, maintenance, and administration of safety and efficiency standards. Stationary engineers must be familiar with a variety of instruments, including hand tools and power tools. Their work involves exposure to high temperatures and contact with oil, grease, chemicals and odours.

Educational Background and Skills

The minimum educational requirement in this occupation is graduation from a trade/vocational or institute of technology program in the operation, maintenance and repair of light and heavy equipment. After graduation, prospective stationary engineers must undergo a period of on-the-job training, followed by a written examination qualifying them for a fourth-class certificate. Further on-the-job training and examinations are necessary to qualify for the third-, second- and first-class certificates.

Nature of Supply

The primary source of supply to this occupation is the post-secondary education system. Other sources of supply include labour force re-entrants, immigrants and people leaving the military. Movements into this occupation from related ones marginally exceed exits to other occupations, suggesting that for many, this occupation represents an upper level on the career ladder.

Men dominate this occupational area. Over the 1981-to-1986 period, the average age of stationary engineers dropped from 40 to 39, the proportion between 25 and 54 increased, and the proportion under 25 declined. A typical career as a stationary engineer lasts between 35 and 40 years, with entry normally occurring between the ages of 20 and 30.

Market Conditions and Job Prospects

Employment for stationary engineers and utility equipment operators declined over the 1981-to-1989 time period, battered by general economic conditions and technological changes. Job shortages in this field have not been reflected in high unemployment counts, however, as people leaving the occupation have been able to get jobs elsewhere.

Over the 1989-to-1995 period employment is expected to decline further, as technological change reduces the demand for services in this occupation. This drop is expected to be quite gradual and less severe than over the 1981-to-1989 period. The number of jobs created over this period should approximate 8,000, all of which will arise from existing employees retiring, dying or leaving the occupation for other reasons.

1985 Annual Earnings	$	
Lowest 10% of Workers	20,127	or less
Average Worker	30,979	
Highest 10% of Workers	43,518	or more

Source: 1986 Census

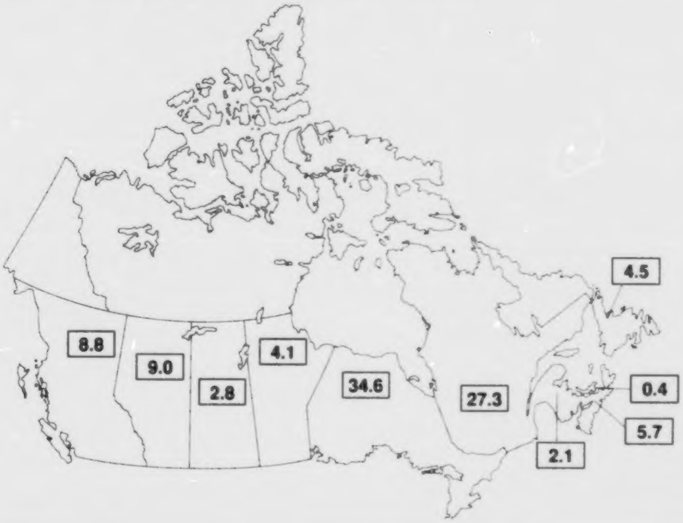
For further information, contact:

International Brotherhood of Electrical Workers
Suite 401, 45 Sheppard Ave. East
Willowdale, Ontario M2N 5Y1
(416) 226-5155

Radio and Television Broadcasting Equipment Operators 9551

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	4,725	2.3	1.9	2,382
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	83	17	33	64	3	89	11
	1986	84	16	21	73	6	89	11
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Transport & Communications & Utilities (67)
- Radio & TV Broadcasting (57)
- Telephone & Telegraph (6)
- Air Transport (1)

Public Administration (16)
- Federal (13)
- Provincial (2)

Services (8)
- Recreation (4)
- Education (1)
- Miscellaneous (1)

Radio and Television Broadcasting Equipment Operators 9551

Job Environment

This occupation includes broadcast engineers, radio operators, telecasting technicians and videotape recording (VTR) operators. Radio and television equipment operators route radio and television programs through transmitters and network lines, and monitor radio and television broadcasts. The hours of work vary depending on the requirements of the position. A normal work week is five days and 40 hours.

Educational Background and Skills

The basic educational requirement for entry into these occupations is secondary school graduation. A community college or institute of technology program with emphasis on electronics and radio and television broadcasting is highly recommended. Whatever the individual's educational background and previous experience, a period of on-the-job training is normally required.

Nature of Supply

The primary source of supply is the post-secondary education system. Labour force re-entrants and immigrants are also lesser sources. Although inter-occupational mobility is difficult to measure with precision, the flow of workers out of this area into related ones is expected to exceed the influx from other occupations, suggesting that these occupations represent a starting point for many people.

This occupation is predominantly male. Most radio and television operators reside in Ontario and Quebec. The average age (34) has risen since 1981. A typical career in this occupation lasts 20 years, with entrance normally taking place between the ages of 20 and 24.

Market Conditions and Job Prospects

Employment growth for broadcast equipment operators was above the average for all occupations over the 1981-to-1989 period. Since the early 1980s, employment in the occupation has grown at slightly above the average rate, with high growth in the radio and television industry spurring demand for employment and resulting in a tighter market over the 1984-to-1988 period and reflected by declines in unemployment.

Over the 1989-to-1995 period employment is expected to continue to grow at a rate slightly above average, largely the result of the continued growth in the radio and television industry. New technology will have a mixed impact on employment. Cable and video recorders and players may create some job opportunities, while increasing automation (micro-processor controlled equipment) may eliminate others.

In general, economic conditions suggest a small but steady growth. The number of jobs created over this period should be approximately 2,400, with slightly more than three-quarters arising when existing employees retire, die or leave the occupation.

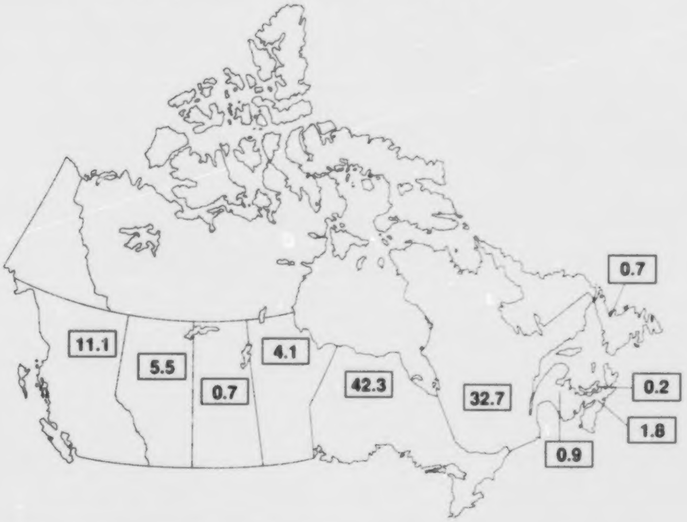
1985 Annual Earnings	**$**	
Lowest 10% of Workers	**17,058**	**or less**
Average Worker	**29,758**	
Highest 10% of Workers	**41,988**	**or more**

Source: 1986 Census

Sound and Video Recording and Reproduction Equipment Operators 9555

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	2,322	0.4	0.8	985
All Occupations	12,434,282	1.5	1.5	8,062,668

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	88	12	25	70	5	88	12
	1986	87	13	20	77	3	81	19
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (59)
- Recreation (45)
- Education (6)
- Business (3)

Transport & Communications & Utilities (31)
- Radio & TV Broadcasting (30)

Manufacturing (4)
- Miscellaneous (3)

Sound and Video Recording and Reproduction Equipment Operators 9555

Job Environment

Audio engineers, radio recorders, sound editors and studio technicians record and reproduce sound and video images for recordings or for radio and television broadcasting. Depending on the specialty, associated duties include recording sound and images during production or dubbing recorded work during the post-production period. A five-day work week of 40 hours based on shift rotations is normal. Overtime is required periodically.

Educational Background and Skills

While secondary school graduation is the basic qualification, a community college or institute of technology program with emphasis on television or radio broadcasting is highly recommended and in fact becoming essential. A period of on-the-job training may also be required, depending on the individual's educational background and previous experience.

Nature of Supply

Most individuals who enter this occupation are graduates from the post-secondary education system. Other sources of supply include labour force re-entrants and immigrants.

Men dominate this occupation, although the number of women has been increasing. Most video operators work in Quebec and Ontario. The average age (32) as well as the age structure of this occupation have remained fairly stable since 1981. An average career as a video operator spans approximately 25 years, with entrance normally occurring between the ages of 25 and 29.

Market Conditions and Job Prospects

Employment growth for recording equipment operators was below the average for all occupations over the 1981-to-1989 period. This poor showing was due to technological change, which hindered the growth of the occupation in spite of the overall health of the broadcasting industry. The slack market was reflected by moderately high unemployment.

Over the 1989-to-1995 period employment is expected to continue to grow at about one-half the average rate. A trend towards automation may affect employment prospects negatively. Although employment will grow faster than it did over the 1981-to-1989 period, it will still be slower than the average. The number of jobs created over the this period should approximate 1,000 with most of the jobs resulting as existing employees retire, die or leave the occupation.

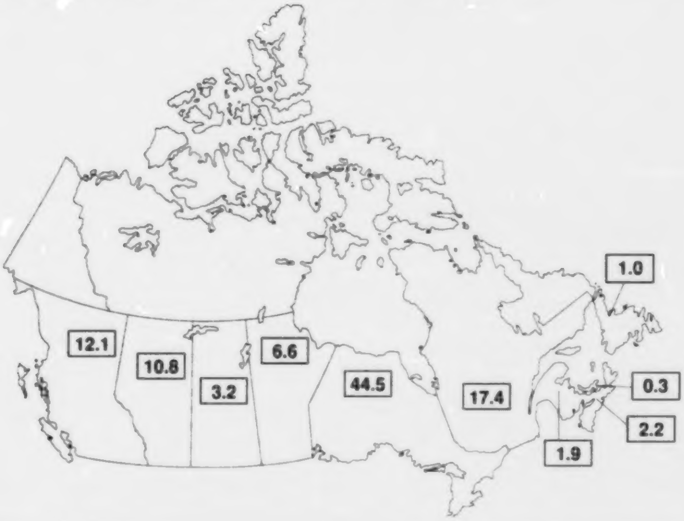
1985 Annual Earnings	$	
Lowest 10% of Workers	13,622	or less
Average Worker	27,308	
Highest 10% of Workers	42,371	or more

Source: 1986 Census

Photographic Processing Occupations 9591

Employment Trends	Number of Jobs 1989	Average Annual Growth Rates (%) Actual 1981 - 1989	Average Annual Growth Rates (%) Projected 1989 - 1995	Number of Job Openings 1989 - 1995
This Occupation	10,343	4.2	3.7	6,739
All Occupations	12,434,282	1.5	1.5	8,081,262

Geographic Distribution of Employment - 1986 Census (%)



Census - 1981 and 1986 (%)		Men	Women	Age<25	Age 25-54	Age>54	Full-time	Part-time
This Occupation	1981	50	50	36	58	6	85	15
	1986	51	49	32	62	6	80	20
All Occupations	1981	60	40	25	63	12	82	18
	1986	57	43	20	69	11	79	21

1986 Census - Main Industries of Employment (%)

Services (63)	Manufacturing (19)	Trade (14)
- Miscellaneous (48)	- Printing & Publishing (15)	- Retail (13)
- Recreation (4)	- Miscellaneous (2)	- Wholesale (1)
- Business (4)		

Photographic Processing Occupations

9591

Job Environment

This classification includes processors of both still and motion-picture film, who use such equipment as colour photo printers, enlargers, and film and photograph developers. Their environment ranges from mass-processing retail outlets to specialized custom-photo labs where personnel are highly skilled and experienced. In all cases, there is some exposure to toxicity and fumes. New laser techniques used by photo processors include the removal of unwanted details from photographs and enhancement of photos reproduced from transparencies.

Educational Background and Skills

There are two ways of acquiring the necessary skills and knowledge for employment in this occupational group. On-the-job training is the most common way; the alternative is to complete a program in photography at a community college or institute of technology.

Nature of Supply

Besides apprentices and post-secondary graduates, people entering the occupation include labour force re-entrants and immigrants. Preliminary estimates of inter-occupational mobility indicate that more people will move out of this occupational group to related ones than will enter the field from other occupations, suggesting that many people begin their careers in these occupations.

Since 1981, the number of women in this occupational group has been about equal to the number of men. The average age (32) as well as the age structure, while increasing slightly, have remained relatively stable since 1981. The average career lasts approximately 30 to 35 years, with entry normally occurring between the ages of 20 and 24.

Market Conditions and Job Prospects

Employment growth for photographic processors was above average over the 1981-to-1989 period. This good performance results from a rapid growth in the demand for their services. The apparent tightening of the market between 1984 and 1988 is reflected by declines in the level of unemployment.

Over the 1989-to-1995 period, employment is expected to continue to grow at an above average rate as demand continues to increase. Technical changes have meant that processors are able to offer a wider variety of products, which has increased the demand for their services, and will continue to do so.

The number of jobs created over the 1989-to-1995 period should approximate 6,700, with slightly less than two-thirds resulting from replacements as employees retire, die or leave.

1985 Annual Earnings	$	
Lowest 10% of Workers	10,261	or less
Average Worker	19,522	
Highest 10% of Workers	31,705	or more

Source: 1986 Census

Index of Occupations

A

Accountants, Auditors and Other Financial Officers 32
Accounting Clerks 194
Actors / Actresses 180
Actuaries 94
Administrators in Medicine and Health 12
Administrators in Teaching and Related Fields 10
Advertising and Illustrating Artists 170
Advertising Salespersons 236
Aerospace Engineers 80
Agriculturalists and Related Scientists 54
Aircraft Fabricating and Assembling Occupations 300
Aircraft Mechanics and Repairers 322
Air Pilots, Navigators and Flight Engineers 370
Air Transport Operating Support Occupations 372
Anthropologists 100
Archaeologists 100
Architects 62
Architectural Technologists and Technicians 90
Archivists 110
Audiologists 142
Auto Fabrication and Assembly 298

B

Baking 282
Barbers, Hairdressers and Related Occupations 254
Biologists and Related Scientists 56
Blasting Occupations 278
Boilermakers, Platers and Structural Metal Workers 296
Bookkeepers and Accounting Clerks 194
Brick and Stone Masons and Tile Setters 352
Bus Drivers 380
Business and Commercial Machine Mechanics and Repairers 328
Business Services Sales 238

C

Cabinet and Wood Furniture Makers 314
Captains and Other Officers, Fishing Vessels 268
Camera Operators 172, 386
Carpenters and Related Occupations 350
Cashiers and Tellers 196
Chefs and Cooks 248
Chemical Engineers 64
Chemists 44
Chiropractors and Osteopaths 134
Choreographers 178
Civil Engineers 66
Claims Adjusters 214
Clerks, Accounting 194
Clerks, General Office 218
Clerks, Information 210

Clerks, Mail and Postal 212
Clerks, Production 204
Clerks, Shipping and Receiving 206
Clock Repairers 330
Coaches, Trainers and Instructors, Sports and Recreation 188
Commercial Travellers 224
Communications 42
Community College and Vocational Teachers 124
Community Planners 82
Computer Programmers and Related Occupations 96
Concrete Finishing and Related Occupations 354
Conductors, Composers and Arrangers 176
Conservators 110
Construction Electricians and Repairers 344
Construction Operations: Management Occupations 26
Cooks 248
Criminologists 100

D

Dancers 178
Data-Processing Equipment Operators 202
Deck Officers 376
Dental Assistants 162
Dental Hygienists 162
Dental Laboratory Technologists 164
Dentists 130
Denturists 160
Detectives, Government 242
Dietitians and Nutritionists 150
Draughting Occupations 88
Dressmakers 318

E

Economists 98
Editors 184
Educational and Vocational Counsellors 114
Electrical, Electronic and Related Equipment: Inspecting, Testing, Grading and Sampling Occupations: Fabricating, Assembling, Installing and Repairing 310
Electrical and Related Equipment Installing and Repairing Occupations 304
Electrical Engineers 68
Electrical Equipment Fabrication and Assembly 302
Electrical Power Line Workers and Related Occupations 342
Electronic and Related Equipment Installing and Repairing Occupations 308
Electronic Data-Processing Equipment Operators 202
Electronic Equipment Fabrication and Assembly 306
Elementary and Kindergarten Teachers 120
Embalmers and Related Occupations 252
Engineering Officers, Ship 378
Engineering Technologists and Technicians 92
Engineers 84
Ethnologists 100
Excavating, Grading and Related Occupations 340

F

Farm Machine Operators 266
Farm Management Occupations 28
Farmers 260
Financial Management Occupations 14
Fire-Fighting Occupations 240
Food and Beverage Preparation and Food Service Occupations: Supervisors 246
Food and Beverage Serving Occupations 250
Forestry 60
Forestry Conservation Occupations 270
Funeral Directors, Embalmers and Related Occupations 252
Freight Agents 216

G H

General Office Clerks 218
General Managers and Other Senior Officials 4
Geochemists 46
Geologists 46
Geophysicists 46
Glaziers 368
Government Inspectors and Regulatory Officers 2
Guards and Related Security Occupations 244

Hairdressers and Related Occupations 254
Hospitality and Other Services Management Occupations 22
Hydrologists 46

I J K

Illustrating Artists 170
Industrial and Personnel Relations, Management Occupations 16
Industrial Engineers 70
Industrial, Farm and Construction Machinery Mechanics and Repairers 326
Inspecting, Testing, Grading and Sampling Occupations: Electrical Power, Lighting and Wire Communications Equipment Erecting, Installing and Repairing 348
Inspecting, Testing, Grading and Sampling Occupations: Metal Machining 288
Inspecting, Testing, Grading and Sampling Occupations: Metal Shaping and Forming, Except Machining 294
Inspectors and Regulatory Officers 2, 40
Insulating Occupations, Construction 360
Insurance, Bank and Other Finance Clerks 198
Interior Designers 168
Interpreters 186
Ironworkers or Structural Metal Erectors 366

Janitors, Charworkers and Cleaners 258
Jewellery and Silverware Fabricating, Assembling and Repairing Occupations 336

Kindergarten Teachers 120

L

Landscape Architects 62
Lawyers and Notaries 108
Librarians 110
Library Technicians 112
Life Sciences Technologists and Technicians 58
Livestock Workers 262
Locomotive Operating Occupations 374
Log Inspecting, Grading, Scaling and Related Occupations 272

M

Machinist and Machine Tool Setting-Up Occupations 286
Mail and Postal Clerks 212
Management Occupations, Construction 26
Management Occupations, Farming 28
Management Occupations, Financial 14
Management Occupations, Natural Sciences and Engineering 6
Management Occupations, Personnel and Industrial Relations 16
Management Occupations, Purchasing 20
Management Occupations, Sales and Advertising 18
Management Occupations, Social Sciences and Related Fields 8
Management Occupations, Transport and Communications Operations 30
Marine Craft Fabricating, Assembling and Repairing Occupations 338
Mathematicians 94
Mechanical Engineers 72
Mechanics and Repairers (Other) 334
Medical Laboratory Technologists 158
Medical Radiation Technologists 156
Metallurgical Engineers 74
Metal Mouldmaking, Coremaking and Casting Occupations 280
Meteorologists 50
Mineralogists 46
Mining Engineers 76
Ministers of Religion 116
Motor Vehicle Mechanics and Body Repairers 320
Museum and Archival Sciences Technicians 112
Music and Musical Entertainment Occupations 176
Musicians and Singers 176

N

Natural Sciences and Engineering, Management Occupations 6
Naval Architects 62
Notaries 108
Nursery and Related Workers 264
Nurses, Registered, Graduate and Nurses-in-Training 136
Nursing Attendants 138
Nutritionists 150

O

Occupational Therapists 146
Oceanographers 46
Opticians: Dispensing 154
Optometrists 152
Orderlies 138
Organization and Methods Analysts 34
Osteopaths 134

P

Painters, Paperhangers and Related Occupations 358
Performing and Audio-Visual Arts 174
Personnel and Industrial Relations, Management Occupations 16
Personnel and Related Ofiicers 36
Petroleum Engineers 78
Pharmacists 148
Photoengraving and Related Occupations 386
Photographers and Camera Operators 172
Photographic Processing Occupations 396
Physical Sciences Technologists and Technicians 52
Physicians and Surgeons 128
Physicists 48
Physiotherapists 144
Pilots 370
Pipefitting, Plumbing and Related Occupations 364
Plasterers and Related Occupations 356
Police Officers and Detectives, Government 242
Power Station Operators 388
Precision Instrument Mechanics and Repairers 332
Printing Press Occupations 384
Producers and Directors, Performing and Audio-Visual Arts 174
Product and Interior Designers 168
Production Clerks 204
Production Management Occupations 24
Professional Engineers 84
Psychologists 102
Public Health Inspectors 2
Public Relations and Communications 42
Purchasing Management Occupations 20
Purchasing Officers and Buyers, Except Wholesale and Retail Trade 38

Q R

Radio and Television Announcers 182
Radio and Television Broadcasting Equipment Operators 392
Radio and Television Repairers 312
Rail Transport Equipment Mechanics and Repairers 324
Real Estate Sales Occupations 232
Receptionists and Information Clerks 210
Registered Nursing Assistants 140
Respiratory Therapists 166
Rock and Soil Drilling Occupations 276
Roofing, Waterproofing and Related Occupations 362
Rotary Well-Drilling and Related Occupations 274

S

Sales Agents and Traders, Securities 234
Sales and Advertising Management Occupations 18
Sales, Business Services 238
Sales Clerks and Salespersons, Commodities 226
Sales Occupations, Commodities: Supervisors 220
Sales Occupations, Insurance 230
Sales Occupations, Real Estate 232
Sales Occupations, Services: Supervisors 228
Salespersons, Advertising 236
Salespersons, Technical 222
Secondary School Teachers 122
Secretaries and Stenographers 190
Securities Traders 234
Seismologists 46
Senior Managers 4
Sheet Metal Workers 290
Shipping and Receiving Clerks 206
Sociologists, Anthropologists and Related Social Scientists 100
Social Sciences and Related Fields 8
Social Workers 104
Sound and Video Recording and Reproduction Equipment Operators 394
Speech-Language Pathologists 142
Stationary Engine and Utilities Equipment Operating and Related Occupations 390
Statistical Clerks 200
Statisticians 94
Stock Clerks and Related Occupations 208
Surgeons 128
Surveyors 86
Systems Analysts, Computer Programmers and Related Occupations 96

T

Tailors and Dressmakers 318
Teachers (Elementary and Kindergarten) 120
Teachers (Exceptional Students) 126
Teachers (Secondary School) 122
Teachers (University) 118
Teaching Administrators and Related Fields 10
Television Announcers 182
Tellers 196
Textile, Fur and Leather Products: Pattern Making, Marking and Cutting Occupations 316
Tile Setters 352
Tool and Die Making Occupations 284
Translators and Interpreters 186
Transport and Communications Operations, Management Occupations 30
Travel and Related Attendants, Except Food and Beverage 256
Travel Clerks, Ticket, Station and Freight Agents 216
Truck Drivers 382
Typists and Clerk-Typists 192

U V W X Y Z

University Teachers 118

Veterinarians 132
Vocational Counsellors 114
Vocational Teachers 124

Watch and Clock Repairers 330
Welding Occupations 292
Welfare and Community Services Occupations 106
Wire Communications and Related Equipment Installing and Repairing Occupations 346
Writers and Editors 184

Volume

2

job futures

Experience of Recent Graduates

An Occupational Outlook to 1995

Volume 2

1990
Edition

Canadian Occupational
Projection System
COPS

LM-068/2/E

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Minister of Employment
and Immigration

CANADA

Ministre de l'Emploi
et de l'Immigration

Message from the Minister of Employment and Immigration

It is with great pleasure that Employment and Immigration Canada publishes the third, updated version of *Job Futures*. The demand for previous editions from institutions, counsellors and students across the country has convinced us that an update of the 1988-89 edition would be worthwhile. *Job Futures* has proven to be an important tool in helping Canadians understand current and future labour market conditions.

Job Futures was created by Employment and Immigration Canada's Canadian Occupational Projection System (COPS), to provide counsellors with occupational information that they can use to give better advice to Canadians on career choices, career changes and future prospects.

This 1990 edition of *Job Futures*, which contains additional labour market information and projects to 1995, will serve you even better. People setting out on their career path for the first time, and those seeking new career options, will benefit from the material in this publication.

The federal government's goal is to help Canadians create or take advantage of the best possible career opportunities. That is why, increasingly, our programs are focused on developing Canadian workers' skills to meet the demands of accelerating technological change in the workplace and the need for Canada to compete in an increasingly globalized economy.

We are committed to helping Canadians choose and pursue fulfilling careers. I am confident that the information provided in *Job Futures* will lead you to the sources that will help make your career choices wise ones.

Barbara McDougall

Barbara J McDougall

Minister of Employment and Immigration

Minister of State
Youth

Ministre d'État
Jeunesse

CANADA

Message from the Minister of State for Youth

Making the appropriate decisions that will lead to a fulfilling and rewarding career is not an easy task for anyone. It is particularly difficult for young people who often are uncertain about themselves, their talents and their career options.

This decision-making process is further complicated by our changing economy where traditional occupations and professions are being transformed more rapidly than ever before. Making the appropriate career choice — in keeping with one's talents and aspirations as well as labour market realities — is now more complex than ever before.

As we begin the 1990s, nearly 100,000 young people are still dropping out of secondary school every year, a national dropout rate of approximately 30 per cent. Yet we estimate that two-thirds of all jobs created in Canada during this decade will require more than 12 years of education and training. Many of those jobs will demand at least five years of education and training beyond high school. In this climate, it is essential that counsellors and students are provided with timely reference material to have a better picture of the future world of work.

The federal government through the Minister of State for Youth and Employment and Immigration Canada is committed to helping young Canadians choose suitable and fulfilling careers. This third edition of Job Futures is an indication of this commitment to the futures of our Canadian young people.

Whether you are a counsellor or a student, or someone interested in changing careers, *Job Futures,* will give you an understanding of the choices in the job market today and the outlook for these jobs to 1995.

Marcel Danis

Marcel Danis

Minister of State for Youth

Preface

Job Futures is a product of the Canadian Occupational Projection System (COPS), a labour supply-and-demand information and data bank designed by Employment and Immigration Canada.

The occupational information included in these publications includes projections based on data collected and analysed through the Canadian Occupational Projection System. Projections should be interpreted with caution since no one can say with certainty what the future has in store. These projections are not predictions of what will necessarily happen. Rather, they represent one possible path for occupational requirements.

Many trade associations, professional societies, unions and industrial organizations have provided us with valuable career information and insights. Some of these organizations are listed at the bottom of the statistical page for each occupational outlook in Volume One: *Occupational Outlooks*. However, the listing of an organization does not constitute in any way an endorsement or recommendation — either of the organization or of the information it may supply.

This edition of *Job Futures* is the third in what is planned as a regular series of publications on career outlooks in Canada. It embodies the extent of COPS research to date.

Table of Contents

Introduction **ix**

Explanation of Terms xi

Characteristics of 1986 Graduates (Summary Table) xiii

Fields of Study

Arts 2

Business, Commerce, Management and Administration 24

Education 68

Engineering and Engineering Technologies 94

Humanities 176

Medicine and Health 210

Natural Sciences and Primary Industries 254

Physical Sciences 292

Social Sciences and Services 322

Index of Fields of Study **377**

Introduction

Volume Two: Experience of Recent Graduates

Choosing a career or changing your line of work is a challenge, giving rise to a lot of questions. What occupations can I enter with my educational background? What qualifications do I need to enter a specific occupation? What is the job market like? What jobs are sensitive to technological change? Where do the best opportunities for me lie?

Job Futures helps to answer these questions by providing valuable information on the educational system and on future occupational labour markets. *Job Futures* is designed for students and educational counsellors as well as for people interested in changing careers or re-entering the labour market.

In addition to statistical profiles, *Job Futures* contains descriptive information on various features of occupational labour markets. Representatives of industry, labour, provincial governments and education offered their special perspectives. The result is a comprehensive view of present and future labour market conditions.

Volume One of *Job Futures* provides information on the current and future labour market situations for specific occupations. Volume Two concentrates on the link between the educational system and the labour market through analysis of the labour market outcomes for graduates from some 100 fields of study at the post-secondary level.

How Volume Two Works

Volume Two answers such questions as:

- What major field of study should I take to prepare best for a job in the occupation of my choice?
- What prerequisites do I need to be admitted to this field of study?
- In which province is this course offered?
- How long will it take me to graduate?
- Were recent graduates of this field of study able to find jobs when they graduated?
- What sorts of jobs did they find?
- What are the possible links to other careers?
- What do past graduates think of their field of study and their current employment?
- Is it better for me to pursue post-graduate studies or to go job-hunting with an undergraduate degree?

Volume Two is designed to help people make two kinds of decisions about their future occupation: what to study and how to go about finding a job.

Decisions concerning education include:

- choosing the type of institution (trade/vocational, community college, university);
- choosing the level of education (career program, undergraduate, master's, doctorate); and
- choosing the actual field of study.

Job-search strategy decisions include:

- evaluating job-prospects in a chosen occupation;
- identifying the most promising occupations in which to look for a job; and
- learning from the experience of past graduates in the labour market.

Most often, these decisions are made by young people still in school. However, they are also being made by increasing numbers of adults returning to part-time or full-time studies.

Organization of Volume Two

Volume Two is organized by broad academic subject area and subsequently by major field of study, by institution and level of study. In all, it covers 36 major fields of study at the trade/vocational level, 42 at the community college level, 45 at the undergraduate university level, 41 at the university master's level and 23 at the doctoral level.

For each field of study, there is a statistical profile as well as a narrative providing information on the average duration of the program, the historical and projected numbers of graduates, the early labour market experience for these graduates, the major occupations in which they were employed two years after graduation and reported job movements between the third and fifth years after graduation. Such subjects as CO-OP education, part-time study and satisfaction with current employment are also discussed.

Please note that a major field of study, as given in the text, can incorporate many specific study areas. These are listed in the index of Volume Two.

When you've found out which occupations correspond to the field of study you are interested in, check Volume One which provides an overview of most, but not all, occupations as well as an indication of employment prospects for the type of job in question.

It is important to note that, in Volume Two, the occupations of graduates (as taken from the 1988 National Graduate Survey of post-secondary graduates) reflect a range of possible outcomes resulting from educational choices. They do not represent all the options. Not all the occupations listed for a field of study represent ideal or even appropriate short-term career goals for recent graduates. Rather, they reflect the job market realities over the 1986-to-1988 period. These occupations should provide guidance, but should not limit a graduate's creative job search.

Information Sources

Most of the information presented in Volume Two is based on the 1988 National Graduate Survey of 1986 post-secondary graduates, (the most recent available data) as well as the 1987 Follow-Up Survey of 1982 post-secondary graduates who had been previously surveyed in 1984. Over the 1986-to-1988 period the economy was experiencing a boom, with most of the sectors having recovered from the negative impact of the 1981-1982 recession. Readers should keep in mind that these figures depict labour market conditions at that particular time and should be used in conjunction with other occupational information.

Explanation of Terms Used in Volume Two

Major Field of Study — See the index of Volume Two to find out about areas of study within each major field. These fields of study are based on Statistics Canada classifications.

Institution — trade/vocational, community college, university.

Level — The trade/vocational level includes pre-employment or pre-apprenticeship and skill upgrading courses lasting three months or more. It does not include block release apprenticeship training, Basic Training for Skill Development (BTSD), language training or Job Readiness Training (JRT).

The community college level includes graduates of Career Programs, Hospitals and Schools of Nursing, Collèges d'enseignements général et professionel (CEGEP) and Teachers College but excludes University Transfer Program graduates.

The undergraduate university level includes bachelor degrees and undergraduate diplomas and certificates.

The master's university level includes master's degrees and graduate diplomas and certificates.

The doctorate university level includes doctoral graduates.

Average Duration of Program — the duration as estimated from among survey respondents. This average may vary considerably across provinces.

Graduates — total number of full-time and part-time graduates over the entire calendar year. Data for 1981, 1984 and 1987 are historical figures while data for 1989 and 1995 are projections.

Graduates Who Immediately Continued Their Education (%) — the percentage of all graduates who were enrolled full-time six to nine months after graduation, at a post-secondary institution.

Graduates Who did Not Enter the Labour Force (%) — the percentage of graduates of full-time studies who did not continue their education and did not enter the labour force.

Part-time Students Already in the Labour Force (%) — the percentage of graduates who were enrolled on a part-time basis in the final term of their program.

Graduates Who Entered the Labour Force (%) — the percentage of all graduates who were in the labour force two years after graduation.

Graduates Working Full-Time (%) — the percentage of all graduates who were employed full-time two years after graduation.

Graduates Working Part-Time (%) — the percentage of all graduates who were employed part-time two years after graduation.

Unemployed Graduates (%) — the percentage of all graduates who were in the labour force but not employed two years after graduation.

Occupational Distribution (%) — the percentage of the graduates in question who were working full-time in the occupations listed two years after graduation.

What Job Futures Can't Do

Job Futures provides a reasonable view of expected labour conditions in various occupational areas. However, it should not be treated as stand-alone career information but as a companion to other publications.

Job Futures does not provide complete information on training qualifications, full job descriptions or working conditions. To find out more about these, consult your nearest Canada Employment Centre, or refer to the *Canadian Classification and Dictionary of Occupations (CCDO)*; and the *Directory of Associations in Canada*, 11th ed., Toronto: Micromedia Limited, 1990.

As well, Employment and Immigration Canada offers CHOICES, an interactive computer system that allows students to ask pertinent questions about career choices. For information on CHOICES, contact a Canada Employment Centre or the Occupational and Career Information Branch, Employment and Immigration Canada, National Headquarters, Ottawa-Hull.

For questions or comments on the content of
this publication, please contact:

The Director General,
Labour Market Outlook and Structural Analysis Branch,
Employment and Immigration Canada,
National Headquarters,
Ottawa-Hull.

CHARACTERISTICS OF 1986 GRADUATES

(Summary Table)

	LEVEL				
	Trade/ Vocational	Community College	Under-graduate	Master	Doctor
• Average Duration of Program (Years)	8 months	2	3	2	4
• Graduates (1986)	49,349	59,037	119,082	17,590	2,218
• Females (%)	N/A	55	54	44	27
• Average Age of Graduates (Years)	28	23	26	32	34
• Part-Time Graduates (%)	3	7	20	33	20
• Graduates Continuing Education (%)	7	25	14	7	3
• Grads Not Entering Labour Force (%)	4	4	5	6	2
• Grads Entering Labour Force (%)	85	65	61	55	75
• Grads Entering Labour Force Who Were Employed Full-Time (%)	74	75	80	84	88
• Grads Entering Labour Force Who Were Employed Part-Time (%)	9	12	10	9	6
• Grads Entering Labour Force Who Were Unemployed (%)	17	13	10	7	5
• Average Salary (1988$)	19,900	20,700	26,800	36,800	38,000
• Grads Who Felt Current Job Directly/Partly Matches Major Field of Study (%)	78	78	84	93	96
• Grads Who Were Satisfied With Their Current Job (%)	91	91	91	93	96
• Grads Who Felt Over-Qualified for Their Current Job (%)	59	46	39	62	32
• Grads Who Would Make the Same Educational Choice (%)	68	65	68	79	78

Source: Derived from the 1988 National Graduate Survey of 1986 post-secondary graduates.

Fields of Study

Applied Arts

Undergraduate
University (4 years)

Arts

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	774	1,006	931	955	988
% Women Graduates	60.6	64.1	63.7	64.0	64.6
% of Total Graduates at this Level	0.8	0.9	0.8	0.8	0.8

Activity of Graduates	Applied Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	14
Did Not Enter Labour Force	12	5
Part-time Students Already in Labour Force	7	20
Entered Labour Force	73	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	83	11	6
Average for all Fields at this Level	80	10	10

Working Full-time

Artistic, Literary and Recreational (37%)
- Product and Interior Designers (18%)
- Advertising and Illustrating Artists (16%)
- Writers and Editors (3%)

Natural Science, Engineering and Mathematics (23%)
- Draughting Occupations (9%)

Managerial and Administrative (14%)
- Purchasing Managers (12%)
- Administrators in Teaching and Related Fields (2%)

Social Sciences (11%)
- Supervisors in Library, Museum and Archival Sciences (9%)

Other (15%)
- Sales (9%)
- Clerical and Related (5%)

Arts

Applied Arts

Undergraduate
University (4 years)

People entering this field undergo training in a wide range of disciplines including graphic arts, photography, drawing, ceramics and interior, industrial and fashion design. Admission requirements vary depending on the program and the institution, but generally applicants must have completed high school with a high grade average and a concentration in art. Most universities require applicants to present a portfolio of their work and pass an interview. Quebec students must possess a Diploma of Collegial Studies in Fine Arts or Creative Arts. Universities in all provinces except Newfoundland and Prince Edward Island offer degree programs in applied arts and some institutions offer diploma or certificate programs which are shorter in duration. Students generally complete their programs within four years. Women make up the majority of graduates and represented 64% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course among students remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Proportionally fewer applied arts graduates obtained their degrees on a part-time basis than did students in all other fields. Furthermore, the proportion of applied arts graduates continuing their education was significantly smaller than average, perhaps because such formal studies would not enhance their immediate career or income prospects. Once in the labour force, graduates in applied arts were more successful in finding work, particularly full-time jobs, than were other graduates at this level. Consequently, the rate of unemployment for 1986 graduates in applied arts was 6% in 1988, significantly below the average for all graduates at this level.

Graduates Who Entered the Labour Force

Upon graduation, applied arts graduates generally find work as product and interior designers, advertising and illustrating artists and draughtspersons in the business services industry. Applied arts graduates generally face competition for these jobs from community college graduates with a diploma in commercial and promotional arts, graphic and audio-visual arts and creative and design arts. Two years after graduation, 1986 applied arts graduates earned somewhat less than the average income for all graduates at this level, regardless of occupation. Furthermore, the average earnings of 1982 graduates rose significantly slower than the earnings for all other graduates over the 1984-to-1987 period. Survey data also suggest that many applied arts graduates change jobs between the third and fifth years of their careers, moving from temporary sales and university teaching-support into product and interior design and the advertising and illustrating arts.

The Course in Retrospect

About 85% of all graduates in applied arts were satisfied with their jobs, somewhat below the average of all other graduates at this level. This coincides with data showing that applied arts graduates were slightly less successful in finding jobs that matched their undergraduate training and often felt themselves to be overqualified for their jobs. They generally expressed satisfaction with their educational experience, with an almost average proportion indicating that they would make the same educational choices again. Survey results also indicate that employment conditions and job satisfaction improved significantly after the second year, with income improving slightly as well.

Commercial and Promotional Arts

Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(6 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	199	174	169	154
% of Total Graduates at this Level	0.4	0.3	0.3	0.3

Activity of Graduates	Commercial and Promotional Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	7
Did Not Enter Labour Force	9	4
Part-time Students Already in Labour Force	0	4
Entered Labour Force	91	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	70	8	22
Average for all Fields at this Level	74	9	17

Working Full-time

Artistic, Literary and Recreational (44%)	Sales (15%)	Management and Administration (12%)	Clerical and Related (12%)	Crafts and Equipment Operating (12%)	Other (5%)
• Advertising and Illustrating Artists (44%)	• Real Estate Sales (12%) • Commodity Sales Clerks and Salespersons (3%)	• Sales and Advertising Managers (12%)	• Electronic Data Processing Equipment Operators (12%)	• Printing and Related Occupations (12%)	• Service Occupations (5%)

Commercial and Promotional Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(6 months)

In this field, people undertake training in the basics of the advertising, modelling and commercial arts. Entry requirements vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most commercial and promotional arts students have completed high school before enrollment. These programs are offered by major institutions in Newfoundland, Ontario, Manitoba, Alberta and British Columbia and can generally be completed in about six months.

Graduate Trends and Projections

The number of graduates reflects the expected competition for similar types of jobs. Commercial and promotional arts have declined slightly in relative popularity in recent years, as the total number of students in this field dropped from 199 in 1984 to 174 in 1987. Under current conditions, about 5% fewer students per year should complete this course than in the past.

Activity of Graduates

Virtually no commercial and promotional arts graduates pursue their programs on a part-time basis or continue their education immediately upon completion. Upon entering the workforce, however, these graduates were less successful than other trade school students in finding employment. Only about 70% found full-time employment and over 20% were unable to find any work at all.

Graduates Who Entered the Labour Force

Graduates in this field find themselves in a wide array of jobs ranging from advertising and illustrating to real estate sales. When looking for work they compete primarily with community college graduates in similar programs. Survey data show that, two years after graduation, these students were earning approximately the same average income as all trade graduates, regardless of occupation. A study of 1982 graduates showed, however, that their income grew significantly faster than the average between 1984 and 1987. Many graduates change jobs between the third and fifth years of their careers, with most moving out of sales positions into advertising and the illustrating arts.

The Course in Retrospect

Trade graduates in commercial and promotional arts are fairly happy with their educational experience. The proportion who found jobs matching their training was significantly below the average for all trade graduates, however, reflecting a weakness in demand for these workers. Furthermore, the proportion who believed themselves to be overqualified for their jobs was significantly above the average for all trade graduates. Nonetheless, about 90% of graduates in this field reported that they were satisfied with their jobs. Overall working conditions for these graduates worsened somewhat in terms of employment and job satisfaction, but improved in terms of earnings, between the third and fifth years of their careers.

Commercial and Promotional Arts

Arts

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	681	974	885	858	844
% Women Graduates	64.5	65.0	58.1	57.4	55.4
% of Total Graduates at this Level	1.4	1.6	1.5	1.5	1.5

Activity of Graduates	Commercial and Promotional Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	0	7
Entered Labour Force	92	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	90	5	5
Average for all Fields at this Level	75	12	13

Working Full-time

Artistic, Literary, Recreational and Related (39%)	Clerical (25%)	Management and Administration (16%)	Sales (13%)	Other (7%)
• Advertising and Illustrating Artists (24%) • Writers and Editors (10%) • Product and Interior Designers (5%)		• Sales and Advertising Managers (5%)	• Sales Clerks (10%)	

Commercial and Promotional Arts

Career Program
Community College (2 years)

People entering this field undergo training in either advertising, modelling or the commercial arts. Entry requirements vary depending upon the institution and the program, but generally students must complete at least their secondary education with good grades in English and art. Applicants often must present a portfolio of their work and a letter of recommendation. Students generally complete their program within two years. Community colleges in all provinces except Newfoundland, Nova Scotia, New Brunswick and Saskatchewan provide instruction in commercial and promotional arts. Women dominate this field, accounting for 58% of the total graduates in 1987, down from 65% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students rose over the 1981-to-1984 period and has stabilized thereafter. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

All students completed their programs on a full-time basis and generally chose to look for a job immediately upon graduation. They were also very successful in the labour market, with all but 5% finding full-time employment.

Graduates Who Entered the Labour Force

Most commercial and promotional arts graduates find employment as advertising and illustrating artists in the printing and publishing industry while smaller numbers work as writers and editors, product and interior designers or sales and advertising managers. Graduates generally face competition from university, community college and trade/vocational graduates in this and related fields.

Two years after graduation, 1986 graduates were earning slightly more than other graduates at this level, regardless of occupation. Unemployment in this group declined steadily after graduation, with previously unemployed students taking part-time jobs. This group also experienced a much faster rate of income growth than the average for other community college graduates. Between the third and fifth years of their careers, an average proportion (43%) change jobs, with most movements occurring between advertising and illustrating and product and interior design.

The Course in Retrospect

Graduates appeared fairly satisfied with their current jobs. Most felt that their field of study matched their current job, and relatively few felt overqualified. Salaries in this group were larger than average and the unemployment rate was low. Almost 75% of 1986 commercial and promotional arts graduates indicated that they would make the same education decisions if the choice were to be made again. Dissatisfaction grew between the third and fifth years of their careers, however, as many graduates became disenchanted with their jobs or felt less sure of past educational decisions.

Creative and Design Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(7 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	466	427	415	377
% of Total Graduates at this Level	0.9	0.9	0.9	0.9

Activity of Graduates	Creative and Design Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	7
Did Not Enter Labour Force	14	4
Part-time Students Already in Labour Force	8	4
Entered Labour Force	74	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	75	6	19
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating, Assembling and Repairing Occupations (55%)
- Sewing Machine Operators, Textile and Similar Materials (24%)
- Patternmaking, Marking and Cutting: Textile, Fur and Leather Products (13%)
- Shoemaking and Repairing (7%)

Service Occupations (15%)
- Chefs and Cooks (6%)
- Personal Service Occupations (5%)

Artistic, Literary, Recreational and Related (8%)
- Product and Interior Design (5%)
- Painters, Sculptors and Related (3%)

Other (22%)
- Processing (5%)
- Sales (4%)
- Agriculture (4%)
- Construction (4%)

Arts

Creative and Design Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(7 months)

Individuals enrolling in this field study the fashion arts (custom dressmaking and alterations, fashion design, sewing) or interior decorating. The prerequisites for this field vary depending upon the program (pre-employment or skill upgrading), the institution and the province, but entering students have usually completed at least their secondary education. Normally students complete the course in about seven months. Institutions in all provinces except Prince Edward Island and New Brunswick offer instruction in creative and design arts.

Graduate Trends and Projections

The number of graduates reflects the future number of people who will be competing for similar kinds of jobs. The number of graduates from creative and design arts declined from 466 in 1984 to 427 in 1987, mirroring a fall in relative popularity. Under current conditions, about 10% fewer students per year should complete this course than in the past.

Activity of Graduates

The proportion of creative and design arts graduates who pursued their educational program on a part-time basis was slightly larger than the average for others at this level. The proportion who entered the labour force was much smaller than the average, but those who did look for work were equally successful in finding full-time employment. The proportions who were working part-time or were unemployed were also similar to the average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as sewing machine operators in the garment industry, while smaller numbers take jobs as patternmakers, markers and cutters, shoemakers and shoe repairers, painters and sculptors and product and interior designers. Two years after graduation, 1986 creative and design arts graduates earned about 35% less than the average for this level, regardless of occupation. In general, these graduates face job competition from other graduates in the same field of study. Further survey data reveal that while about 60% of 1982 graduates had changed jobs between 1984 and 1987, almost all continued to do the same type of work. The average salary for these graduates increased more slowly over the 1984-to-1987 period than the average for all other graduates at this level.

The Course in Retrospect

A smaller-than-average proportion of creative and design arts graduates (60%) would select the same educational program if the choice had to be made again. This may reflect the lower-than-average proportion who found jobs related to their training, as well as the smaller-than-average proportion who were satisfied with their current job. The proportion who felt overqualified was much larger than the average. Further survey data indicate little changed over the 1984-to-1987 period, except that unemployment was lower in 1987 than in 1984.

Creative and Design Arts

Arts

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	951	725	782	758	746
% Women Graduates	84.4	88.8	84.9	82.0	78.8
% of Total Graduates at this Level	2.0	1.2	1.3	1.3	1.3

Activity of Graduates	Creative and Design Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	31	25
Did Not Enter Labour Force	5	3
Part-time Students Already in Labour Force	1	7
Entered Labour Force	63	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	75	2	23
Average for all Fields at this Level	75	12	13

Working Full-time

Artistic, Literary and Recreational (40%)	Management and Administration (22%)	Sales (16%)	Other (22%)
• Product and Interior Design (40%)	• Advertising and Sales Managers (14%)	• Retail Salespersons (16%)	• Clerical (10%)

Creative and Design Arts

Career Program
Community College (2 years)

People entering this field learn the basic principles of jewellery design, the fashion arts and interior decorating. Entry requirements vary depending on the program and the institution, but applicants usually have completed high school with at least one course in art or drafting and good marks in English (French) and mathematics. Often applicants must pass a diagnostic test in English (French), undergo an interview and present a letter of recommendation and a portfolio of previous work. The duration of these programs varies, but they can generally be completed within two years. Instruction in the Creative and Design Arts is offered by community colleges in the provinces of Quebec, Ontario, Alberta and British Columbia. Women dominate this field, accounting for 85% of total graduates in 1987.

Graduate Trends and Projections

The relative popularity of this course among students declined significantly over the 1981-to-1984 period, and has since risen only marginally. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of students pursuing their studies on a part-time basis was almost nil. A slightly larger-than-average proportion of these graduates continued their education upon completion of their course, and of those seeking employment a much smaller proportion (77%) were successful in finding a job. Almost all employment was full-time.

Graduates Who Entered the Labour Force

Most creative and design arts graduates find employment as product and interior designers in the business services industry, while smaller numbers work as sales and advertising managers and as sales personnel in the household furniture and appliance industry. Graduates from this course generally face job competition from community college, trade/vocational and university graduates in this and similar fields.

Two years after graduation, 1986 graduates were earning about 25% less than others at this level, regardless of occupation. Unemployment in this group declines over time, and between the third and fifth years after graduation, salaries for these graduates increased at a slightly faster rate than the average; during the same period, an average proportion (45%) changed jobs, usually moving amongst product and interior design, advertising and sales management, and advertising and illustrating occupations.

The Course in Retrospect

The transition from school to work did not appear to be a very positive experience for these graduates, as only a smaller-than-average proportion expressed satisfaction with their current job. This coincides with a relatively weak match between field of study and current job, a larger-than-average proportion feeling overqualified, a significantly less-than-average salary and a very high unemployment rate. Only about three out of every five 1986 creative and design arts graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, however, career feelings improved, with slightly fewer feeling overqualified for their job, more feeling their job matched their training and more being content with past educational decisions.

Fine Arts

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	708	563	1,055	1,023	1,006
% Women Graduates	64.5	59.0	56.3	52.4	48.2
% of Total Graduates at this Level	1.5	1.0	1.8	1.8	1.8

Activity of Graduates	Fine Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	27	25
Did Not Enter Labour Force	6	3
Part-time Students Already in Labour Force	2	7
Entered Labour Force	65	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	63	22	15
Average for all Fields at this Level	75	12	13

Working Full-time

Artistic (43%)	Clerical (13%)	Services (12%)	Management and Administration (11%)	Teaching (10%)	Other (11%)
• Product and Interior Design (16%) • Painters, Sculptors and Related Artists (9%) • Photographers and Camera Operators (8%) • Choreographers and Dancers (8%)			• Business/ Promotional Agents (9%)	• Fine Arts Teachers (10%)	

Fine Arts

Career Program
Community College (2 years)

Students in the field of Fine Arts specialize in various disciplines including dance, music, acting and other performing arts, sculpting, painting and handicrafts. The entry requirements vary depending on the field and institution. Generally, applicants must have completed high school with good marks in their English (French) courses. They usually must audition, pass an interview, present a letter of recommendation or submit a portfolio of previous work. Community colleges in New Brunswick, Quebec, Ontario, Alberta and British Columbia graduated students in Fine Arts in 1987, mostly from two-year programs of study. In 1987, 56% of the graduates were women, down from 65% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students declined over the 1981-to-1984 period but has since risen to above its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 35% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Fine Arts graduates were just as likely as community college graduates as a whole to look for a job immediately after graduation. Not only were these graduates slightly less successful in finding a job but a significantly greater-than-average proportion were working only part-time. Upon graduation, about 25% of all Fine Arts graduates immediately continued their formal education.

Graduates Who Entered the Labour Force

The majority of these graduates find work as product and interior designers in the amusement and recreational service industries and in the business service industry. Two years after graduation, 1986 Fine Arts graduates earned about 25% less than the average for all community college graduates, regardless of occupation. Graduates in this area generally face job competition from other community college or university graduates with degrees in similar fields.

About 65% of 1982 graduates from this field had changed jobs by 1987. Movement was generally out of jobs not directly related to their education (e.g., sales) to advertising, illustrating or management occupations. The average salary of these graduates increased faster over the 1984-to-1987 period than did that of other community college graduates.

The Course in Retrospect

In general, Fine Arts graduates feel very positive about their educational experience; about 90% said that they would make the same educational choice again. This attitude contradicts labour market information, which indicates that a significantly less-than-average proportion of these graduates were satisfied with their current jobs, and that many felt that their jobs did not match their field of study. In addition, almost 75% felt overqualified for their current job. Over the long run, either as a result of changing occupations or upgrading their level of certification, there was substantial improvement in job satisfaction and matching jobs with fields of study.

Graphic and Audio-Visual Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	467	342	333	302
% of Total Graduates at this Level	0.9	0.7	0.7	0.7

Activity of Graduates	Graphic and Audio-Visual Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	7
Did Not Enter Labour Force	6	4
Part-time Students Already in Labour Force	5	4
Entered Labour Force	84	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	3	15
Average for all Fields at this Level	74	9	17

Working Full-time

Crafts and Equipment Operating (37%)	Artistic, Literary and Recreational (14%)	Clerical (14%)	Managerial and Administrative (12%)	Other (23%)
• Printing Press Operators (17%) • Typesetting and Composing (13%) • Bookbinding and Related (7%)	• Advertising and Illustrating Artists (8%) • Photographers and Camera Operators (6%)	• Office Machine Operators (6%) • Shipping and Receiving Clerks (6%)	• Sales and Advertising Managers (6%)	

Graphic and Audio-Visual Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Individuals entering this field are trained in printing and publishing, photography or recording music. The requirements for admission vary depending on the type of program (pre-employment or skill upgrading) and the institution, but enrolling students usually possess some community college education as well as a high school diploma. The student typically completes the program studies in about 10 months. All provinces except Prince Edward Island and New Brunswick offer instruction in the graphic and audio-visual arts.

Graduate Trends and Projections

The number of graduates is an accurate indicator of the number of people who will be competing for similar kinds of work. In 1984, there were 467 graphic and audio-visual arts graduates; by 1987 this number had fallen to 342. Under current conditions, about 20% fewer students per year should complete this course than in the past.

Activity of Graduates

About an average proportion of graphic and audio-visual arts graduates pursued their diploma on a part-time basis relative to all other graduates at this level. An average proportion of these graduates entered the labour force, but they were more successful than average in finding full-time jobs. They also had a lower-than-average unemployment rate.

Graduates Who Entered the Labour Force

Most of these graduates become printing press operators in the printing, publishing and allied industries, while some find jobs as typesetters and composers, bookbinders, advertising and illustrating artists, and photographers and camera operators. Whatever their occupation, 1986 graphic and audio-visual arts graduates earned about 20% less in 1988 than the average for other graduates at this level. Graduates from this field generally face job competition from community college graduates with a diploma in commercial/promotional art. Forty-five percent of 1982 graduates changed jobs between 1984 and 1987, mainly moving among the printing and related or advertising and illustrating occupations. The average salary for these graduates rose faster over the 1984-to-1987 period than the average for all other graduates at this level.

The Course in Retrospect

The proportion of graphic and audio-visual arts graduates (60%) who would select the same educational program if the choice had to be made again was lower than the average for other trade/vocational graduates. This relative disappointment may be a result of a comparatively high level of job dissatisfaction, which is explained in turn by the lower-than-average proportion who found jobs related to their educational training, the greater-than-average proportion who felt overqualified for their jobs and the lower-than-average earnings. The situation changed little over the 1984-to-1987 period, except that more graduates were employed full-time and more felt overqualified in 1987 than in 1984.

Graphic and Audio-Visual Arts

Arts

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	598	720	710	688	677
% Women Graduates	40.6	47.2	49.3	49.6	50.5
% of Total Graduates at this Level	1.2	1.2	1.2	1.2	1.2

Activity of Graduates	Graphic and Audio-Visual Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	13	25
Did Not Enter Labour Force	2	3
Part-time Students Already in Labour Force	3	7
Entered Labour Force	82	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	9	9
Average for all Fields at this Level	75	12	13

Working Full-time

Artistic, Literary and Recreational (56%)
- Advertising and Illustrating Artists (22%)
- Writers and Editors (13%)
- Photographers and Camera Operators (5%)
- Product and Interior Designers (4%)

Clerical (12%)
- Office Clerks (8%)
- Supervisors (4%)

Crafts and Equipment Operating (10%)
- Printing and Related (9%)

Other (22%)
- Management and Administration (6%)
- Natural Science, Engineering and Mathematics (4%)
- Sales (2%)

Graphic and Audio-Visual Arts

Career Program
Community College (2 years)

People who enter this field undertake training in a variety of disciplines including photography, recording music, and printing and publishing. Entry requirements vary depending on the institution and the program, but generally applicants must have completed some high school (including mathematics), undergo an interview and present a reference letter and some samples of previous work. At some institutions the student can enter a CO-OP program combining work and study. Community colleges in all provinces except Nova Scotia, New Brunswick and Saskatchewan graduated students in this field in 1987 with most students completing their studies within two years. Graduates are evenly divided between the sexes, with women accounting for 49% of the total in 1987, compared to 41% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students has remained constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A much smaller-than-average proportion of these graduates continued their education and, conversely, a much larger proportion than average choose to look for a job immediately upon graduation. The proportion of students receiving their diploma/certificate on a part-time basis was almost nil, implying that full-time classroom participation was necessary. A larger proportion of these graduates (91%) were successful in finding a job, with most working on a full-time basis.

Graduates Who Entered the Labour Force

Most graphic and audio-visual arts graduates find employment as advertising and illustrating artists in the printing and publishing industry, while smaller numbers work as writers, editors, photographers and camera operators. Graduates from this course generally face job competition from trade/vocational and community college graduates in commercial and promotional arts, and from university graduates in applied arts, English and mass communications.

Two years after graduation, 1986 graduates were earning about 10% less than other graduates at this level, regardless of occupation. As the time after graduation increases, the proportion of these graduates who are not working declines dramatically, largely the result of increases in the number who find full-time jobs. Between the third and fifth years after graduation, the average salary of graphic and audio-visual graduates increases at about the same rate as the average for other community college graduates. A smaller-than-average proportion (40%) of these 1982 graduates changed jobs during this period, with most movement occurring among advertising and illustrating artists, product and interior designers, photographers and camera operators and advertising and sales management occupations.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a relatively high level of job satisfaction. This probably results in turn from a relatively strong match between field of study and current job and the relative ease of finding a job, although it contrasts with the larger-than-average proportion of graduates feeling overqualified and with the less-than-average salary. Seven out of every ten 1986 graphic and audio-visual arts graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, however, job dissatisfaction grew, with a larger proportion of graduates feeling overqualified for their jobs and fewer being content with past educational decisions. The numbers able to find a job matching their training did not change.

Music

Undergraduate
University (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	746	837	895	928	968
% Women Graduates	56.7	59.0	57.7	57.9	58.5
% of Total Graduates at this Level	0.8	0.8	0.7	0.8	0.8

Activity of Graduates	Music Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	28	14
Did Not Enter Labour Force	7	5
Part-time Students Already in Labour Force	8	20
Entered Labour Force	57	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	54	33	13
Average for all Fields at this Level	80	10	10

Working Full-time

Teaching (52%)	Artistic and Literary (10%)	Clerical and Related (10%)	Other (28%)
• Secondary School Teachers (22%) • Fine Arts Teachers (15%) • Elementary and Kindergarten Teachers (9%) • Elementary and Secondary School Teaching and Related Occupations (4%)	• Musicians and Singers (10%)	• Secretaries and Stenographers (10%)	

Music

Undergraduate
University (3 years)

Music encompasses a broad range of disciplines, including music history, music theory, music composition, orchestration and instrument performance. Enrollment in the music faculties of most universities is limited. The aspiring musician must generally audition to demonstrate talent and proficiency with their major instrument, successfully pass a test of basic music theory and pass an interview. Applicants must complete high school with a strong grounding in music. Quebec students must possess a Diploma of Collegial Studies with a music concentration. Major universities in all provinces offer music degrees and some institutions offer diploma or certificate programs. Students normally complete these programs in about three years, sometimes through CO-OP programs combining work and school. Women make up the majority of music graduates, accounting for 57% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Compared to all graduates, a lower-than-average proportion of music graduates obtained their degrees on a part-time basis. A larger-than-average proportion of music graduates continue their post-secondary studies, perhaps because they have difficulty finding jobs in their field or because they need additional qualifications.

Music graduates are less likely than other graduates to look for work immediately upon graduation. Further, not only are these graduates less successful in finding a job but a dramatically larger number were only working part-time. The rates of unemployment for music graduates were somewhat above the average for all graduates at this level.

Graduates Who Entered the Labour Force

Upon graduation, music graduates generally seek work as secondary school and fine arts teachers and as musicians in the entertainment industry. Many graduates also accept, on a temporary basis, secretarial and clerical work in business and other service industries. In the job market, music graduates compete primarily against university graduates with teacher training for the available positions in teaching, since they are often required to teach a variety of subjects. Graduates in music compete primarily with other university music graduates for the available jobs in the music field.

Two years after graduation, 1986 music graduates earned significantly less than the average income for all graduates at this level, regardless of occupation. The average earnings of 1982 music graduates rose significantly faster than the earnings for all other graduates over the 1984-to-1987 period, reflecting the fact that many music graduates change jobs between the third and fifth years of their careers, often abandoning the music profession.

The Course in Retrospect

Survey results reveal that music graduates were fairly satisfied with their educational experience, with a larger-than-average proportion indicating that they would make the same educational choices again. The proportion of graduates who found jobs matching their undergraduate training was significantly below average, however, and the proportion who believed themselves to be overqualified for their jobs was slightly above average. Despite their relatively low earnings, about 90% of all music graduates were satisfied with their jobs, virtually the same as the average of all other graduates at this level. This suggests that music graduates derive a significant amount of satisfaction from the nature of their work. Overall conditions for music graduates tend to improve in terms of employment, job satisfaction and income between the third and fifth years of their careers.

Music

Arts

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	104	136	130	129	123
% Women Graduates	53.8	49.3	61.5	62.7	62.3
% of Total Graduates at this Level	0.7	0.8	0.7	0.7	0.7

Activity of Graduates	Music Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	6
Did Not Enter Labour Force	0	6
Part-time Students Already in Labour Force	20	33
Entered Labour Force	69	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	66	20	14
Average for all Fields at this Level	84	9	7

Working Full-time

Teaching (46%)	Artistic, Literary and Recreational (14%)	Managerial and Administrative (13%)	Medicine and Health (8%)	Other (19%)
• Fine Arts Teachers (26%) • Post-Secondary School (8%) • Secondary School (5%) • Elementary and Kindergarten (3%)	• Writers and Editors (8%) • Musicians and Singers (6%)	• General Managers (8%) • Other Management and Administration (5%)	• Audio and Speech Therapists (8%)	

Arts

Music

Master's
University (2 years)

At the master's level, individuals study music intensively, with special emphasis on music theory, composition and performance. The admission requirements vary depending on the university, but in general, applicants must possess an honours undergraduate degree in music or the equivalent. Most universities require applicants to undergo an interview and an audition showing proficiency in at least one instrument. Master's degree programs are offered in major universities throughout Canada except in the Atlantic provinces. Some universities offer graduate diplomas or certificate programs that are shorter in duration than the master's programs but still require the applicant to have completed an undergraduate degree. Women accounted for 63% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained fairly stable over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

Significantly fewer music graduates than other master's graduates pursued their degree on a part-time basis. These graduates were also more likely to continue their education and to enter the labour market after receiving their degree than other master's graduates. They were much less successful in the labour market, however, with a greater-than-average proportion working part-time and an unemployment rate twice the average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as fine arts teachers, while a smaller number work as post-secondary school teachers, audio and speech therapists, and musicians and singers. Regardless of occupation their average salary was significantly less than the average salary for all graduates at this level. Graduates from this field of study generally face job competition from undergraduates with a degree, diploma or certificate in music, elementary/secondary teacher training, fine arts and performing arts, as well as community college graduates with a diploma or certificate in fine arts. Although about 60% of these graduates changed jobs between 1984 and 1987, only about 20% were doing different work, and none of those working as musicians and singers in 1984 had changed occupations by 1987. The average salary of these 1982 graduates increased more slowly over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

Generally, music graduates feel positive toward their educational experience, as indicated by the larger-than-average proportion who would make the same educational choices again. This contrasts with the higher-than-average numbers feeling overqualified for their current jobs as well as with a lower-than-average salary. Job satisfaction was high, however, and the proportion of these graduates who found employment related to their occupation was also above average. This situation changed little over the 1984- to-1987 period.

Personal Arts

Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(11 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	1,172	908	883	802
% of Total Graduates at this Level	2.3	1.8	1.8	1.8

Activity of Graduates	Personal Arts Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	7
Did Not Enter Labour Force	6	4
Part-time Students Already in Labour Force	3	4
Entered Labour Force	85	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	70	11	19
Average for all Fields at this Level	74	9	17

Working Full-time

Service Occupations (73%)
- Barbers and Hairdressers (66%)
- Guards and Security Officers (2%)

Clerical (15%)
- Cashiers and Tellers (4%)
- Bookkeepers and Accounting Clerks (3%)
- Receptionists and Information Clerks (2%)
- General Office Clerks (2%)

Other (12%)

Personal Arts

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(11 months)

This field of study covers training in barbering, hairdressing, hairstyling, cosmetology and manicuring. The minimum entry requirements depend on the type of program (pre-employment or skill upgrading) and the institution. Students entering these programs usually possess a high school diploma, and typically take about 11 months to complete their studies. All provinces except Quebec offer training in the personal arts.

Graduate Trends and Projections

The number of graduates reflects the expected competition for similar kinds of jobs. This field experienced a fall in relative popularity between 1984 and 1987, with the number of graduates declining from 1,172 to 908. Under current conditions, about 20% fewer students per year should complete this course than in the past.

Activity of Graduates

The proportion of personal arts graduates who enter the labour force is the same as the average for graduates of all trade/vocational programs. The figures for full-time and part-time employment, as well as for unemployment are similar to the overall averages.

Graduates Who Entered the Labour Force

The majority of these graduates find work as barbers and hairdressers in personal and household service industries. There are no other significant occupational concentrations. About 70% of 1982 graduates changed jobs between 1984 and 1987, with most movements out of barbering and hairdressing into service management, sales, and reception and information positions. Two years after completing their studies, 1986 graduates earned about 40% less than the average for others at this level, regardless of occupation. Graduates from this field generally face job competition from community college graduates with a diploma or certificate in personal arts.

The Course in Retrospect

The proportion of personal arts graduates (65%) who would select the same educational program if the choice had to be made again was about the same as the overall average for graduates at this level. A higher-than-average proportion were satisfied with their jobs and a lower-than-average proportion felt overqualified for their work. This offsets the lower-than-average proportion who found a job related to their educational training and the somewhat lower-than-average earnings for this level.

Commerce (Business Administration)

Undergraduate
University (3 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	11,914	15,995	16,897	17,255	17,799
% Women Graduates	31.6	39.5	45.4	45.6	46.0
% of Total Graduates at this Level	12.1	14.8	14.1	13.9	13.9

Activity of Graduates	Commerce (Business Administration) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	14
Did Not Enter Labour Force	2	5
Part-time Students Already in Labour Force	25	20
Entered Labour Force	67	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	90	3	7
Average for all Fields at this Level	80	10	10

Working Full-time

Managerial and Administrative (64%)
- Accountants, Auditors and Other Financial Managers (37%)
- Sales and Advertising Managers (6%)
- Financial Managers (4%)
- Personnel and Related Managers (2%)

Clerical and Related (12%)
- Bookkeepers and Accounting Clerks (4%)

Sales (12%)
- Commercial Travellers (3%)
- Sales Clerks and Salespersons (2%)
- Insurance Sales (2%)

Other (12%)
- Social Sciences (3%)

Business, Commerce, Management and Administration

Commerce (Business Administration)

Undergraduate
University (3 years)

Individuals entering this field study a wide range of disciplines including accounting, marketing, production management, finance, personnel management and industrial relations. Admission requirements vary depending on the university, but in general, applicants must have completed high school with above-average grades, especially in mathematics and English (or French). Quebec students must possess a Diploma of Collegial Studies. Virtually all universities in Canada award commerce or business degrees, and many offer diploma or certificate programs that are shorter in duration than the full degree programs. Students normally complete these degrees in about three years, sometimes as part of a CO-OP program combining study and work. The proportion of female graduates rose from 32% in 1981 to 45% in 1987.

Graduate Trends and Projections

The relative popularity of this course rose significantly over the 1981-to-1984 period but has since fallen. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of commerce graduates who completed their degrees through part-time study was slightly above average, and the proportion who continued their education after graduating was below average. These graduates were somewhat more likely than others at this level to be looking for work immediately upon graduation, and were also more successful in finding it. Almost all found full-time jobs, while about 3% took part-time positions.

Graduates Who Entered the Labour Force

Most commerce graduates find jobs as accountants and auditors or as financial, advertising or sales managers. In the job market they compete primarily with community college graduates in commerce and university graduates from all fields, but especially those in economics, computer science, mathematics and business (MBAs). Two years after graduation, 1986 commerce graduates earned slightly more than the average income for all graduates at this level, regardless of occupation. Furthermore, the average earnings of 1982 commerce graduates grew at a much faster pace between 1984 and 1987 than the average of all other graduates. A large number of these graduates changed jobs between the third and fifth years of their careers, mostly moving around between different management and finance positions.

The Course in Retrospect

Individuals with undergraduate commerce degrees appeared to be fairly satisfied with their educational experience, as about 75% reported that they would make the same educational choices again. The proportion who found jobs matching their undergraduate training was somewhat above average, while the proportion who believed themselves to be overqualified for their jobs was about average for all graduates at this level. Not surprisingly then, with their earnings matching the average for all graduates, almost 90% of all commerce graduates reported that they were satisfied with their current jobs. Furthermore, overall conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Commerce (Business Administration)

Master's
University (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,453	3,150	3,052	3,034	2,880
% Women Graduates	23.8	28.0	30.1	30.7	30.5
% of Total Graduates at this Level	17.1	19.3	17.3	17.3	17.3

Activity of Graduates	Commerce (Business Administration) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	1	6
Did Not Enter Labour Force	1	6
Part-time Students Already in Labour Force	34	33
Entered Labour Force	64	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	96	1	3
Average for all Fields at this Level	84	9	7

Working Full-time

Managerial and Administrative (67%)	Natural Sciences, Engineering and Mathematics (9%)	Social Sciences (6%)	Teaching (5%)	Other (13%)
• Accountants and Auditors (18%) • Financial Management (8%) • Inspectors and Regulatory Officers (8%) • Sales and Advertising Managers (7%) • Production Managers (4%) • Organization Methods Analysts (4%)	• Systems Analysts and Computer Programmers (2%)	• Economists (3%)	• University (3%)	

Business, Commerce, Management and Administration

Commerce (Business Administration)

Master's
University (2 years)

Individuals entering this field at the graduate level undergo training in a wide variety of business disciplines including accounting, finance, industrial relations, marketing, inventory management, business economics and strategic planning. The admission requirements vary depending on the university, but in general, applicants must have an undergraduate honours degree (preferably in commerce, but graduates in other fields are also considered). Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference. Business faculties generally give preference to applicants with some relevant business experience. Major universities throughout Canada, except in Prince Edward Island, provide graduate programs in commerce which students can generally complete within two years sometimes as part of a CO-OP program combining work and study. Some universities offer graduate diploma or certificate programs that are shorter in duration but that require applicants to possess an undergraduate degree. The majority of graduates are men, but female representation in this field grew to 30% in 1987, up from 24% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period but has since fallen back to about its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

An average number of commerce graduates pursued their degree on a part-time basis. A smaller proportion than average continued their education after receiving their MBA, and thus a larger proportion than average entered the labour force. Not only were commerce graduates at this level (MBA) more successful in finding employment, but a larger-than-average proportion found a full-time job. Their unemployment rate was less than half the average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as accountants, auditors and other financial management officers in the business service industry, while smaller numbers work as inspectors, regulatory officers, sales and advertising managers, university teachers and economists. Two years after graduating, 1986 graduates, regardless of occupation, earned about 25% more than the average at this level. Graduates from this field of study generally face job competition from undergraduates and community college graduates with a degree, diploma or certificate in commerce. About 55% of 1982 graduates from this field changed jobs between 1984 and 1987, primarily moving out of accounting, auditing and similar financial positions into financial management, general management and systems analysis. The average salary of these graduates increased more slowly between the third and fifth years of their career than that of other master's graduates.

The Course in Retrospect

Commerce and business administration graduates felt very positive towards their educational experience, with about 90% indicating that they would make the same educational choices again. This may reflect their higher earnings, since the proportions of those who found jobs that matched their graduate training, were satisfied with their jobs and who felt overqualified were about the same as the average for all graduates at this level. This situation changed little between the third and fifth years of their career.

Commerce (Business Administration)

Doctorate
University (5 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	23	21	41	46	46
% Women Graduates	17.4	14.3	43.9	44.7	44.5
% of Total Graduates at this Level	1.3	1.1	1.7	1.7	1.7

Activity of Graduates	Commerce (Business Administration) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	39	20
Entered Labour Force	61	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	92	0	8
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching
(100%)
- University
  (100%)

Business, Commerce, Management and Administration

Commerce (Business Administration)

Doctorate
University (5 years)

Individuals studying this discipline at the doctorate level specialize in such fields as accounting, finance, industrial relations, marketing, inventory management, business economics and strategic planning. The admission requirements vary depending on the university, but all applicants must have a Master of Business Administration (MBA) or the equivalent with high standing. Most universities require applicants to undergo an interview and provide letters of reference, and preference is generally given to applicants with some relevant business experience. Doctorates in business administration can be obtained from major universities in Quebec, Ontario and British Columbia. Students generally complete this program within five years, often on a part-time basis. Women accounted for 44% of all doctorates in 1987, up sharply from 17% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined slightly over the 1981-to-1984 period but has since risen to exceed its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be almost twice as high over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

A significantly larger-than-average proportion of business doctorates were obtained through part-time study, since many of these candidates were already in the labour force. Upon graduation, none continued with post-doctorate studies, and thus a smaller-than-average proportion of these doctorates were first-time entrants to the labour market. Typical for their small numbers, most commerce doctorates were able to find work, with about nine out of ten working full-time. Nonetheless, their unemployment rate was somewhat higher than the average for all doctorates.

Graduates Who Entered the Labour Force

Commerce doctorates generally find work as university professors and face little if any competition from doctorates in other fields for these positions. Two years after graduation, 1986 graduates were earning about 35% more than all other doctorates on average. Moreover, the average earnings of 1982 doctorates in commerce grew at a much faster rate than the average between 1984 and 1987. Virtually none of these commerce doctorates changed jobs between the third and fifth years of their careers.

The Course in Retrospect

Commerce doctorates were fairly satisfied with their educational experience, as about seven out of ten reported that they would make the same educational choices again, given the opportunity, although this is slightly below the average. Most of the business doctorates obtained jobs matching their training at above average earnings. A substantially lower-than-average proportion believed that they were overqualified for their jobs, but their job satisfaction rate was about average. Overall working conditions for business doctorates, already good, even improved in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Financial Management (Accounting)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	409	468	455	413
% of Total Graduates at this Level	0.8	1.0	1.0	1.0

Activity of Graduates	Financial Management (Accounting) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	10	7
Did Not Enter Labour Force	6	4
Part-time Students Already in Labour Force	0	4
Entered Labour Force	84	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	85	6	9
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical
(49%)
- Bookkeepers and Accounting Clerks (16%)
- Secretaries and Stenographers (7%)
- General Office Clerks (7%)
- Electronic Data Processing Operators (3%)

Managerial and Administrative
(32%)
- Financial Officers (22%)
- Financial Managers (2%)
- Services Managers (2%)

Sales
(5%)
- Sales Clerks and Salespersons (3%)

Other
(14%)

Business, Commerce, Management and Administration

Financial Management (Accounting)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Individuals entering this field receive basic training in bookkeeping and/or small-business management. Entry requirements vary depending on the type of program (pre-employment or skill upgrading) and the institution. People who enter this field generally possess a high school diploma, and usually complete their studies in about 10 months. Institutions in Nova Scotia, Manitoba and British Columbia offer instruction in the basics of finance, financial management and accounting.

Graduate Trends and Projections

The number of graduates reflects the expected level of competition for similar kinds of jobs. This field has experienced an increase in relative popularity in recent years, with the number of graduates rising from 409 in 1984 to 468 in 1987. Under current conditions, about 5% more students per year should complete this course than in the past.

Activity of Graduates

The proportion of financial management (accounting) graduates entering the labour force approximated that of other graduates at this level. These graduates were, however, much more successful in finding full-time jobs than other trade/vocational graduates, and thus the proportions working part-time or who were unemployed were also much smaller than the average.

Graduates Who Entered the Labour Force

Generally, graduates from this course find work as finance officers and bookkeepers/accounting clerks in the business service industry, while smaller numbers take jobs as secretaries and general office clerks. Two years after graduation, 1986 graduates earned about 15% less than the average for all others at this level, regardless of occupation. Graduates in this field face competition from community college and university graduates with training in accounting, management and administration, and commerce. Data also indicate that about 50% of 1982 graduates changed jobs between 1984 and 1987, with most moving between bookkeeping and accounting and finance. Their average salary increased faster between 1984 and 1987 than the average for all other graduates at this level.

The Course in Retrospect

Proportionally more accounting graduates (75%) than the average would select the same educational program if the choice had to be made again. This may reflect the relative success of graduates in finding employment that matched their educational training, despite the fact that a larger-than-average proportion felt overqualified for their jobs. The job satisfaction rate for these graduates was about average. Survey data indicate little change between 1984 and 1987, other than an increase in the employment rate for 1982 graduates.

Financial Management (Accounting)

Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,113	1,297	1,355	1,314	1,292
% Women Graduates	59.4	60.8	59.1	56.0	47.5
% of Total Graduates at this Level	2.3	2.2	2.3	2.3	2.3

Activity of Graduates	Financial Management (Accounting) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	9	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	10	7
Entered Labour Force	77	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	3	6
Average for all Fields at this Level	75	12	13

Working Full-time

Management and Administration (55%)
- Accountants and Auditors (46%)
- Other Management (3%)
- Sales and Advertising (3%)

Clerical (38%)
- Bookkeepers and Accounting Clerks (26%)

Other (7%)

Business, Commerce, Management and Administration

Financial Management (Accounting)

Career Program
Community College (2 years)

Students entering this field specialize in the basics of bookkeeping, office management and accounting. The specific entry requirements vary by institution, but in general, applicants must have completed high school with good grades in mathematics, English and sometimes bookkeeping. Some institutions require a mathematics or aptitude test and an interview. Most basic programs can be completed in two years, sometimes as part of a CO-OP program combining work and academics. Additional training on the job is usually necessary for these graduates. Instruction in basic accounting is offered by most community colleges in all provinces except New Brunswick, Quebec and Manitoba. The majority of graduates are women, who accounted for 59% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

A much larger proportion of accounting graduates than other community college graduates chose to look for a job immediately after graduation. Not only were they significantly more successful in finding a job, but a much smaller proportion than average were working part-time. Upon graduation, only about 10% immediately continued their formal education.

Graduates Who Entered the Labour Force

The majority of these graduates find work as accountants, auditors, bookkeepers and accounting clerks in the business service industry. They generally face job competition from other community college graduates in management and administration courses and from university graduates with degrees in business related fields.

About 45% of 1982 graduates from this field had changed jobs by 1987, generally moving out of clerical occupations such as bookkeeping into accounting, auditing and other financial management occupations. Their average salary increased faster over the 1984-to-1987 period than that of other community college graduates.

The Course in Retrospect

Accounting graduates feel positive toward their educational experience, with about 70% indicating that they would make the same educational choice again. This reflects their experience in the labour market, where job satisfaction is high and larger-than-average proportions feel that their current job matches their educational background. A slightly greater-than-average proportion feel overqualified for their job, but generally these graduates' attitudes toward their educational training and their job only improves over time.

Other Financial Management

Career Program
Community College (3 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,033	2,431	2,321	2,250	2,213
% Women Graduates	58.8	62.5	62.3	62.1	61.2
% of Total Graduates at this Level	4.2	4.1	4.0	4.0	4.0

Activity of Graduates	Other Financial Management Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	16	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	9	7
Entered Labour Force	71	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	80	11	9
Average for all Fields at this Level	75	12	13

Working Full-time

Clerical
(42%)
- Bookkeepers and Accounting Clerks (20%)
- Secretaries (6%)
- General Office Clerks (5%)

Management and Administration
(37%)
- Accountants, Auditors and Other Financial Officers (28%)
- Financial Managers (2%)

Other
(21%)
- Sales (5%)
- Services (2%)

Business, Commerce, Management and Administration

Other Financial Management

Career Program
Community College (3 years)

Students entering this field can specialize in a wide range of disciplines including investment management, real estate assessment/appraisal, property management and banking. The admission requirements vary depending on the program and institution, although applicants should possess a high school diploma with good marks in mathematics and English (French). Normally students complete these financial programs in three years, often through a CO-OP program combining work and study. Financial management programs are offered in all provinces except Prince Edward Island, Nova Scotia, New Brunswick, Manitoba and Saskatchewan. Women make up the majority of graduates, accounting for 62% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course among students remained almost constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

A much smaller-than-average proportion of these graduates continued their education upon completing their programs, with a larger proportion than average choosing to look for a job instead. This is fairly typical for graduates in business and administration. The proportion of students receiving their education on a part-time basis approximated the average for all community college graduates. Not only were a larger-than-average proportion of these graduates (91%) successful in finding a job, they were also more likely to work full-time.

Graduates Who Entered the Labour Force

Most of these graduates find employment as accountants, auditors and other financial officers or as bookkeepers and accounting clerks in the business services industry; smaller numbers work in other managerial and clerical occupations. Graduates from this course generally face job competition from trade/vocational and community college graduates in accounting, management and administration and from university graduates in commerce.

Two years after graduation, 1986 graduates were earning about 15% less than other graduates at this level, regardless of occupation. The proportion of these graduates who are unemployed declines with time, largely the result of increases in those finding full-time jobs. Between the third and fifth years after graduation, the average salary of these graduates increased at a rate approximating the average for other community college graduates. A larger-than-average proportion (45%) changed jobs during this period as well, with most of the movement occurring among the accountant, auditor and financial officer, bookkeeper and accounting clerk, and managerial occupations. About 30% of 1982 graduates from this field who were secretaries in 1984 had become bookkeepers and accounting clerks by 1987.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a high level of job satisfaction. This probably results from a relatively strong match between field of study and current job, a low level of respondents feeling overqualified for their positions and a less-than-average unemployment rate. Graduates' satisfaction with the course of study is also high in this field, with three out of every four 1986 graduates indicating that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers these graduates tended to become disenchanted with their job, with a larger proportion feeling overqualified and fewer being content with past educational decisions. Nevertheless, of these 1982 graduates, a larger proportion in 1987 than in 1984 felt their job matched their education.

Institutional Management

Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	578	694	886	859	845
% Women Graduates	52.1	56.6	58.0	56.5	56.0
% of Total Graduates at this Level	1.2	1.2	1.5	1.5	1.5

Activity of Graduates	Institutional Management Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	6	7
Entered Labour Force	85	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	2	7
Average for all Fields at this Level	75	12	13

Working Full-time

Clerical and Related (36%)
- Hotel Clerks (13%)
- Secretaries (6%)
- Finance Clerks (3%)
- Receptionists (3%)

Management and Administration (32%)
- Hotel Managers (16%)
- Personnel and Industrial Relations Managers (5%)
- Medicine and Health Administrators (4%)
- Sales and Advertising Managers (3%)

Services (17%)
- Supervisors: Food and Beverage (6%)

Other (15%)
- Medicine and Health (7%)
- Sales (6%)

Institutional Management

Career Program
Community College (2 years)

People entering this field learn about managing institutions such as hospitals, other health care facilities, hotels and resorts. Admission prerequisites vary depending on the discipline and institution, but generally applicants should have completed high school with good grades in mathematics and English (French). Some institutions may require the student to pass an interview and aptitude tests. These management programs normally last two years and are offered in all provinces except Prince Edward Island, Nova Scotia and Quebec. Women accounted for 58% of total graduates in 1987, up from 52% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students remained constant over the 1981-to-1984 period, but has since risen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Like most students in business and administration, a much smaller-than-average proportion of these graduates continue their education upon graduating, and a significantly greater proportion than average choose to look for a job instead. This is probably the result of the strong and immediate demand for these graduates, as reflected by a significantly below-average unemployment rate. The proportion of students receiving their education on a part-time basis approximated the average. A larger-than-average proportion of these graduates (94%) were successful in finding a job, with all but 2% working full-time.

Graduates Who Entered the Labour Force

Most institutional management graduates find employment as hotel managers in the accommodation, food and beverage industry, while smaller numbers work as hotel clerks in training for hotel management positions, administrators in medicine and health, and food and beverage supervisors. Graduates from this course generally face job competition from trade/vocational, community college and university graduates with qualifications in this and related fields, such as marketing, accounting, commerce and economics.

Two years after graduation, 1986 graduates were earning about 5% less than other graduates at this level, regardless of occupation. Unemployment among these graduates remains relatively stable over time, with the average 1982 graduate spending eight weeks unemployed in 1986. Between the third and fifth years after graduation, the average salary of institutional management graduates increased at a significantly faster rate than the average for other community college graduates. A much greater-than-average proportion (60%) changed jobs during this period, with most movement occurring from hotel clerk or bookkeeping occupations into hotel management. Almost 90% of 1982 graduates who were hotel managers in 1984 were still managers in 1987.

The Course in Retrospect

The transition from school to work did not appear to be a particularly positive experience for these graduates, as job satisfaction was comparatively low. This coincides with an average match between field of study and current job, a much larger-than-average proportion feeling overqualified for their positions and a less-than-average salary. Not surprisingly, only five out of every ten 1986 institutional management graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers these graduates tended to become even more disenchanted with their jobs, with a larger proportion feeling overqualified, slightly fewer feeling their jobs matched their training and fewer being content with past educational decisions.

Management and Administration (Business and Commerce)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(11 months)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	693	614	597	542
% of Total Graduates at this Level	1.4	1.2	1.2	1.2

Activity of Graduates	Management/Administration (Business and Commerce) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	13	7
Did Not Enter Labour Force	4	4
Part-time Students Already in Labour Force	4	4
Entered Labour Force	79	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	77	10	13
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical and Related Occupations (54%)
- Secretaries and Stenographers (14%)
- Bookkeepers and Accounting Clerks (12%)
- Reception, Information, Mail and Message Distribution (5%)
- Electronic Data Processing Operators (2%)

Managerial and Administrative (16%)
- Financial Officers (5%)
- Sales and Advertising Managers (2%)
- Service Managers (2%)
- Personnel and Related Officers (2%)

Service Occupations (12%)
- Chefs and Cooks (6%)
- Supervisors: Food and Beverage Preparation (2%)

Other (18%)

Business, Commerce, Management and Administration

Management and Administration (Business and Commerce)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(11 months)

People enter this field at the trade school level to study basic management skills, bookkeeping and retailing. Entry requirements vary depending on the type of program and the institution, but most entering students have completed at least some high school. These programs are offered in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan and take about 11 months to complete.

Graduate Trends and Projections

The number of graduates reflects the expected level of competition for similar types of jobs. The number of graduates declined from 693 in 1984 to 614 in 1987, mirroring a decline in this field's relative popularity. Under current conditions, about 10% more students per year should complete this course than in the past.

Activity of Graduates

These graduates enter the labour force in approximately the same proportion as other graduates, but are generally more successful in finding full-time work.

Graduates Who Entered the Labour Force

Most of these graduates find work as secretaries and stenographers in the business service industry, while smaller numbers take jobs as bookkeepers, accounting clerks, receptionists and general office clerks. Two years after graduation, 1986 graduates were earning about 10% less than the average for all other graduates at this level, regardless of occupation. Graduates from this field face competition from community college graduates with a diploma or certificate in secretarial science. About 45% of 1982 graduates changed jobs between 1984 and 1987, leaving clerical jobs (such as secretary and stenographer) for positions as receptionists and information clerks, as well as for openings in management and administration. Salary increases kept pace with the changes for other graduates at this level between 1984 and 1987.

The Course in Retrospect

Slightly more graduates (70%) in this field would select the same educational program if the choice had to be made again than would other graduates at this level, possibly reflecting their greater success in finding jobs related to their educational training. Average proportions of graduates felt overqualified for their work, and expressed satisfaction with their jobs. Employment opportunities improved over the 1984-to-1987 period, especially in terms of full-time positions.

Management and Administration (Business and Commerce)

Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,204	3,440	3,666	3,554	3,496
% Women Graduates	48.5	55.6	52.3	51.7	50.0
% of Total Graduates at this Level	4.5	5.8	6.3	6.3	6.3

Activity of Graduates	Management/Admin. (Business and Commerce) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	28	25
Did Not Enter Labour Force	2	3
Part-time Students Already in Labour Force	9	7
Entered Labour Force	61	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	73	12	15
Average for all Fields at this Level	75	12	13

Working Full-time

Clerical and Related (37%)
- Bookkeepers and Accounting Clerks (11%)
- General Office Clerks (8%)
- EDP Operators (4%)
- Cashiers and Tellers (4%)

Management and Administration (27%)
- Accountants, Auditors and Financial Officers (12%)
- Sales and Advertising (9%)

Natural Sciences, Engineering and Mathematics (9%)
- Systems Analysts (4%)

Sales (8%)
- Salespersons (5%)

Other (19%)

Business, Commerce, Management and Administration

Management and Administration (Business and Commerce)

Career Program
Community College (2 years)

Entrance requirements for this field of study vary from institution to institution, but usually candidates must undergo an interview, take a diagnostic English (French) test and have successfully completed high school with advanced standing in mathematics, English (French) and preferably business. This course is offered in all provinces, although most graduates are concentrated in Ontario. The duration of the program depends on the institution and the specialty, but usually spans two years. In some institutions, students can obtain their certificate or diploma through a CO-OP program. As many men as women graduated from this field of study in 1987.

Graduate Trends and Projections

The relative popularity of this course among students grew dramatically over the 1981-to-1984 period and has since continued to rise, although at a slower rate. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A larger-than-average proportion of these graduates continued their education upon completing the program, reflecting the difficulty of past graduates in securing a job related to their training. The proportion of students receiving their education on a part-time basis was slightly above average. The proportion of graduates looking for a job immediately after graduation, as well as their success rate, was slightly below average.

Graduates Who Entered the Labour Force

Most of these graduates find employment as accountants, auditors and financial officers, and are scattered across the economy. The heaviest concentration is in the business service industry, with smaller numbers working as sales and advertising managers, sales personnel, EDP operators and bookkeepers. Graduates from this course generally face job competition from community college and university graduates in accounting, financial management and commerce.

Two years after graduation, 1986 graduates were earning about 5% less than other graduates at this level, regardless of occupation. A 1982 graduate from this field spent, on average, four weeks unemployed in 1986 as compared to the three week average for all community college graduates. The average salary of these graduates increased at a slightly faster rate than the average for other community college graduates between the third and fifth years after graduation. A larger-than-average proportion changed jobs during this period, usually moving from sales positions to sales managers and financial officers, and from bookkeepers and sales managers to financial officers and managers. About 75% of 1982 graduates who were sales and advertising managers in 1984 were still in the same field in 1987.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a slightly higher level of job satisfaction. This stands in contrast to a relatively weak match between field of study and current job, a larger-than-average incidence of people feeling overqualified and a less-than-average salary. Two out of every three 1986 graduates in this field indicated that they would make the same education decisions if the choice were to be made again. Satisfaction grew between the third and fifth years of their careers, with larger numbers feeling their job matched their training and being content with past educational decisions, although a larger proportion felt overqualified for their job in 1987 than 1984.

Marketing

Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,300	1,429	1,757	1,704	1,675
% Women Graduates	41.2	46.3	48.7	49.5	52.2
% of Total Graduates at this Level	2.7	2.4	3.0	3.0	3.0

Activity of Graduates	Marketing Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	25
Did Not Enter Labour Force	3	3
Part-time Students Already in Labour Force	7	7
Entered Labour Force	79	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	7	11
Average for all Fields at this Level	75	12	13

Working Full-time

Management and Administration (40%)

- Sales and Advertising Managers (17%)
- Service Managers (5%)
- Accountants, Auditors and Financial Officers (5%)
- General Managers (2%)
- Purchasing Officers and Buyers (2%)

Sales (26%)

- Commercial Travellers (11%)
- Sales Clerks (5%)
- Insurance Sales (2%)

Clerical (22%)

- Insurance, Bank and Other Financial Clerks (6%)
- General Office Clerks (3%)
- Cashiers and Tellers (2%)
- Electronic Data Processing Operators (2%)
- Secretaries (2%)

Other (12%)

Business, Commerce, Management and Administration

Marketing

Career Program
Community College (2 years)

The admission requirements for this field vary depending on the program and institution, but generally colleges prefer students who have completed high school with a solid training in mathematics and English (French). The major colleges often require applicants to pass diagnostic tests in English (French) and mathematics as well as undergo an interview. Students can usually complete marketing programs within two years as part of a CO-OP program combining work and academics. Community colleges in all provinces except Newfoundland, Prince Edward Island, New Brunswick, Manitoba and Saskatchewan offer specialized marketing programs for their students. Women entering this field accounted for 49% of the total in 1987, up from 41% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students declined over the 1981-to-1984 period, but has since risen to exceed its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A smaller-than-average proportion of these graduates continue their education upon completing their program and a larger proportion than average choose to look for a job. This is fairly typical of students in business. The proportion of students receiving their diploma/certificate on a part-time basis was average. A slightly larger-than-average proportion of these graduates were successful in finding a job, and a smaller-than-average proportion worked part-time.

Graduates Who Entered the Labour Force

Most marketing graduates find employment as sales and advertising managers in the food, beverage, drug and tobacco, and banking industries, while smaller numbers work as commercial travellers, sales clerks and service managers. Graduates from this course generally face job competition from other community college graduates in management and administration and from university graduates with an undergraduate qualification in commerce.

Two years after graduation, 1986 graduates were earning about 10% more than other graduates at this level, regardless of occupation. The proportion of graduates who are not working declines over time, largely the result of increased full-time employment. Between the third and fifth years after graduation, the average salary of marketing graduates increases at a faster rate than the average for other community college graduates. A larger-than-average proportion (60%) change jobs during this time, usually moving between sales and managerial occupations or amongst various managerial occupations.

The Course in Retrospect

The transition from school to work appears to be a positive experience for these graduates, as indicated by an average level of job satisfaction. This probably results from a relatively strong match between field of study and current job, a larger-than-average salary and a smaller-than-average unemployment rate. Only about three of every five 1986 marketing graduates would make the same educational decisions if the choice were to be made again, however, a reflection of the greater-than-average proportion feeling overqualified for their current job. Between the third and fifth years of their careers the number of these graduates feeling overqualified grew, and fewer were content with past educational decisions, although a larger proportion of 1982 marketing graduates felt their job in 1987 more closely matched their education than did their 1984 job.

Retail Sales

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(7 months)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	169	260	253	230
% of Total Graduates at this Level	0.3	0.5	0.5	0.5

Activity of Graduates	Retail Sales Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	7
Did Not Enter Labour Force	6	4
Part-time Students Already in Labour Force	0	4
Entered Labour Force	88	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	69	13	18
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical (35%)	Sales (29%)	Transport Equipment Operators (15%)	Service Occupations (14%)	Other (7%)
• Bookkeepers and Accounting Clerks (10%) • Shipping and Receiving Clerks (9%) • Secretaries and Stenographers (8%) • Cashiers and Tellers (8%)	• Commodities Salespersons (29%)	• Truck Drivers (15%)	• Barbers and Hairdressers (10%)	

Business, Commerce, Management and Administration

Retail Sales

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(7 months)

Individuals entering this field learn the skills of retail sales and sales management. The admission requirements for this field vary depending on the program and institution, but generally, applying students must have completed their secondary education with a sound basis in English (French) and mathematics. The course is normally completed within seven months, and can sometimes be undertaken as part of a CO-OP program combining work and study. This program is offered in all provinces except Newfoundland, Nova Scotia, New Brunswick and Quebec.

Graduate Trends and Projections

The number of graduates reflects expected competition for similar kinds of jobs. This field has experienced a rise in relative popularity recently, with the number of graduates increasing from 169 in 1984 to 260 in 1987. Under current conditions, about 15% more students per year should complete this course than in the past.

Activity of Graduates

None of the retail sales graduates pursued their studies on a part-time basis, indicating that this course generally necessitates full-time classroom participation. A slightly larger-than-average proportion entered the labour force after completing their program and were as successful as other graduates in finding employment, although the proportion with full-time jobs was slightly below the average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as salespersons in the automobile sales and service industry, while smaller numbers work as secretaries, stenographers, bookkeepers, accounting clerks, cashiers and tellers. Two years after graduation, 1986 graduates earned about 25% less than the average for all graduates at this level, regardless of occupation. In general, graduates from this field of study face job competition from other trade/vocational and community college graduates. About 45% of 1982 graduates changed jobs between 1984 and 1987, with most moving out of retail sales into sales management and from positions as stock clerks into retail sales occupations. The average salary for these graduates rose slower over the 1984-to-1987 period than the average for all other trade/vocational graduates.

The Course in Retrospect

A much smaller-than-average proportion of retail sales graduates (50%) would select the same educational program if the choice had to be made again. This may reflect the lower-than-average proportion who found jobs related to their educational training, the larger-than-average proportion who felt overqualified for their work and the lower-than-average salary. The only change noted over the 1984-to-1987 period was a growth in full-time employment.

Retail Sales

Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	530	464	497	482	474
% Women Graduates	81.9	84.5	83.1	82.2	79.6
% of Total Graduates at this Level	1.1	0.8	0.8	0.8	0.8

Activity of Graduates	Retail Sales Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	9	25
Did Not Enter Labour Force	3	3
Part-time Students Already in Labour Force	9	7
Entered Labour Force	79	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	89	6	5
Average for all Fields at this Level	75	12	13

Working Full-time

Management and Administration (44%)
- Sales and Advertising Managers (26%)
- Financial Officers (9%)

Sales (25%)
- Sales Supervisors (9%)
- Real Estate Sales (9%)
- Sales Clerks (7%)

Clerical (19%)
- Cashiers and Tellers (9%)
- Stock Clerks (8%)
- Bookkeeping and Accounting Clerks (2%)

Other (12%)
- Services (9%)

Business, Commerce, Management and Administration

Retail Sales

Career Program
Community College (2 years)

Individuals entering this field learn skills and techniques in retail sales and sales management. The admission requirements vary depending on the program and institution, but in general, applying students must have completed their secondary education with a sound basis in English (French) and mathematics. Normally students complete the course within two years, sometimes as part of a CO-OP program combining work and study. Community colleges in all provinces except Newfoundland, Nova Scotia, New Brunswick and Quebec offer instruction in retail sales. Women dominate this field, accounting for 83% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course among students declined over the 1981-to-1984 period but has since risen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly smaller-than-average proportion of these students continue their education upon graduating. As with most graduates from business courses, a larger proportion than average choose to look for a job instead. The proportion of students receiving their diploma/certificate on a part-time basis is slightly greater than average, implying that this course is often used for personal or professional improvement. Roughly 10% of 1982 graduates upgraded their educational qualification between 1984 and 1987. A larger-than-average proportion of these graduates (95%) were successful in finding a job, although 6% were working only part-time.

Graduates Who Entered the Labour Force

Most retail sales graduates find employment as sales and advertising managers in the shoe, apparel, fabric and yarn industries or in other retail merchandise industries, while smaller numbers work in other sales or managerial occupations. Graduates from this course generally face job competition from other community college graduates in marketing, management and administration and from university graduates with an undergraduate qualification in commerce.

Two years after graduation, these 1986 graduates were earning about 10% less than others at this level, regardless of occupation. Further, as the time after graduation increases the proportion of these graduates who are not working declines by one-half, largely the result of large increases in part-time employment. Between the third and fifth years after graduation, the average salary of retail sales graduates increases at a slightly faster rate than the average for other community college graduates. Between the third and fifth years of their career, a significantly larger-than-average proportion (70%) change jobs, usually moving among managerial, sales and clerical occupations.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a slightly higher-than-average level of job satisfaction. This probably results from a relatively strong match between field of study and current job and the relative ease in finding employment, although larger-than-average numbers feel overqualified and earnings are less than average. Only about one out of every two 1986 retail sales graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their career, however, these graduates tend to become more satisfied with their current job, as many of them find new employment during this period, leading to a better match between field of study and job and fewer feeling overqualified.

Secretary (Accounting/Bookkeeping)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	831	718	698	634
% of Total Graduates at this Level	1.6	1.4	1.4	1.4

Activity of Graduates	Secretary (Accounting/ Bookkeeping) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	7
Did Not Enter Labour Force	5	4
Part-time Students Already in Labour Force	4	4
Entered Labour Force	86	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	65	15	20
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical (65%)	Managerial and Administrative (14%)	Service Occupations (11%)	Sales (8%)	Other (2%)
• Bookkeepers and Accounting Clerks (18%) • Secretaries and Stenographers (18%) • Electronic Data Processing Operators (7%) • Cashiers and Tellers (4%) • General Office Clerks (4%)	• Accountants, Auditors and Other Financial Officers (8%) • Service Managers (2%)			

Business, Commerce, Management and Administration

Secretary (Accounting/Bookkeeping)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Individuals entering this field obtain secretarial training with an emphasis on accounting and bookkeeping. The entry requirements vary depending on the program and institution, but students have usually completed at least high school. Programs in this field are offered in all provinces except Prince Edward Island, Nova Scotia and Alberta, and take about 10 months to complete.

Graduate Trends and Projections

The number of graduates reflects the future number of persons who will be competing for similar kinds of jobs. Mirroring a drop in the relative popularity of this field, the number of graduates declined from 831 in 1984 to 718 in 1987. Under current conditions, about the same number of students per year should complete this course as in the past.

Activity of Graduates

An average proportion of these graduates pursued their diplomas on a part-time basis. Similarly, an average proportion entered the labour force. A smaller-than-average proportion were working full-time, and a larger-than-average proportion were only working part-time, resulting in a larger-than-average unemployment rate.

Graduates Who Entered the Labour Force

The majority of these graduates find jobs as secretaries, stenographers, bookkeepers or accounting clerks in the business service industry, while a smaller number work in electronic data processing or as sales clerks and general office clerks. Two years after graduation, 1986 graduates earned about 20% less than the average for other graduates at this level, regardless of occupation. In general, graduates from this field of study face job competition from other trade/vocational graduates and community college graduates with a diploma or certificate in the secretarial sciences or in accounting. About 40% of 1982 graduates changed jobs between 1984 and 1987, largely moving out of bookkeeping and accounting positions into managerial and administrative occupations. The average salary of these graduates increased more slowly over the 1984-to-1987 period than the average for all other graduates at this level.

The Course in Retrospect

A slightly larger-than-average proportion of these graduates (70%) would select the same educational program if the choice had to be made again. This may reflect the slightly larger-than-average proportion who found jobs related to their education although a slightly larger-than-average proportion did feel overqualified for their jobs. This situation changed little over the 1984-to-1987 period, with the exception that a larger percentage were employed full-time in 1987 than in 1984.

Secretary (General)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(7 months)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	4,353	3,250	3,162	2,869
% of Total Graduates at this Level	8.5	6.6	6.6	6.6

Activity of Graduates	Secretary (General) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	7
Did Not Enter Labour Force	6	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	84	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	68	14	18
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical (79%)	Service Occupations (6%)	Sales (4%)	Other (11%)
• Secretaries and Stenographers (40%) • Bookkeepers and Accounting Clerks (8%) • Electronic Data Processing Operators (5%) • Receptionists (5%) • Typists and Clerk-Typists (5%) • Cashiers and Tellers (3%)		• Salespersons (3%)	

Business, Commerce, Management and Administration

Secretary (General)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(7 months)

Students in these programs receive training in the basics of keyboarding, filing, and general office management. The entry requirements vary depending on the program and the institution. A 1988 survey indicated that most students had completed at least some secondary school. General secretary programs are offered in all provinces except Prince Edward Island and take about seven months to complete.

Graduate Trends and Projections

The number of graduates in this field reflects the expected competition for similar kinds of jobs. The number of graduates in this field declined from 4,353 in 1984 to 3,250 by 1987, reflecting a decline in relative popularity. Under current conditions, about 15% fewer students per year should complete this course than in the past.

Activity of Graduates

The proportion of graduates who pursued their program on a part-time basis and who entered the labour force after completing their studies was about average. Although they were about as successful as other graduates at this level in finding a job, a larger-than-average proportion worked only part time. They also had a higher-than-average unemployment rate.

Graduates Who Entered the Labour Force

Survey data indicate the majority of these graduates found work as secretaries or stenographers in the business service industry, while smaller numbers found jobs as bookkeepers and accounting clerks, electronic data processing operators, receptionists and information clerks. Regardless of occupation, 1986 graduates earned about 25% less in 1988 than the average for other graduates at this level. Job competition comes primarily from trade/vocational graduates and community college graduates with qualifications in this area. Further survey data reveal that about 50% of 1982 graduates had changed jobs between 1984 and 1987, moving from secretary and stenographer jobs into electronic data processing, general office work and other clerical and related occupations. The average salary for 1982 graduates rose slower than the average for other graduates at this level over the 1984-to-1987 period.

The Course in Retrospect

Sixty-five percent of these graduates would select the same educational program if the choice had to be made again, an average proportion for graduates at this level. A larger-than-average proportion found jobs related to their educational training, while the proportion who felt overqualified for their jobs and the proportion who were satisfied with their work remained average. Further survey data reveal that this situation changed little over the 1984-to-1987 period, with the exception that a much larger percentage were employed full-time in 1987 than in 1984.

Secretary (General)

Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,542	2,750	2,588	2,509	2,468
% Women Graduates	100.0	99.9	99.3	98.9	97.7
% of Total Graduates at this Level	5.2	4.7	4.4	4.4	4.4

Activity of Graduates	Secretary (General) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	25
Did Not Enter Labour Force	3	3
Part-time Students Already in Labour Force	4	7
Entered Labour Force	86	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	7	7
Average for all Fields at this Level	75	12	13

Working Full-time

Clerical
(86%)
- Secretaries and Stenographers (52%)
- Bookkeepers and Accounting Clerks (7%)
- Electronic Data Processing Operators (5%)
- Typists and Clerk Typists (4%)
- General Office Clerks (4%)

Other
(14%)
- Management and Administration (7%)
- Services (4%)

Business, Commerce, Management and Administration

Secretary (General)

Career Program
Community College (2 years)

Individuals entering this field learn general secretarial skills such as keyboarding, shorthand and clerical and office management. The requirements for admission vary depending on the program and institution, but generally applicants must have completed some high school with a sound basis in English (French). Most colleges require applicants to pass a diagnostic English (French) test and meet established typing and shorthand standards, while some require an interview. These programs normally take two years to complete and sometimes can be taken in a CO-OP program combining work and study. The general secretarial program is offered in all provinces except New Brunswick, Saskatchewan and British Columbia. Virtually all 1987 graduates were women.

Graduate Trends and Projections

The relative popularity of this course among students declined consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly smaller-than-average proportion of these graduates continued their education upon graduation, with the overwhelming majority choosing to look for a job instead. The proportion of students receiving their education on a part-time basis was less than average, implying intensive classroom training. These graduates were highly successful not only in finding a job, but in finding a full-time job.

Graduates Who Entered the Labour Force

Most of these graduates find employment as secretaries, with a few others working as bookkeepers, accounting clerks, electronic data processing operators and general office clerks. They work in virtually all industries, but are heavily concentrated in the business service and education industries. Graduates from this course generally face job competition from community college and trade/vocational graduates in secretarial and related fields.

Two years after graduation, 1986 graduates were earning about 25% less than others at this level, regardless of occupation. The proportion of graduates not working declines over time and between the third and fifth years after graduation, their average salary increases at a rate approximating the average for other community college graduates. An average proportion change jobs during this time, usually moving from secretarial jobs into clerical, sales or management positions or from clerical positions into secretarial positions.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a slightly higher level of job satisfaction. This probably results from a relatively strong match between field of study and current job and the relative ease of finding employment. A significantly greater-than-average proportion felt overqualified for their current job, however, and the average annual salary was significantly below the average of all community college graduates. Only about two out of every three 1986 general secretarial graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers dissatisfaction among these graduates grew, as more felt overqualified for their current job and as salaries increased at a comparatively slow pace. By 1987, the number of 1982 graduates who would select this field of study again had declined by almost 20%.

Secretary (Legal)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	124	216	210	191
% of Total Graduates at this Level	0.2	0.4	0.4	0.4

Activity of Graduates	Secretary (Legal) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	7
Did Not Enter Labour Force	0	4
Part-time Students Already in Labour Force	10	4
Entered Labour Force	86	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	6	3
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical
(82%)
- Secretaries and Stenographers (53%)
- General Office Clerks (10%)
- Receptionists and Information Clerks (5%)

Social Sciences and Related
(13%)
- Occupations in Law (13%)

Managerial and Administrative
(5%)

Business, Commerce, Management and Administration

Secretary (Legal)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Individuals entering this field receive basic training in secretarial work focussing on legal matters, law clerking and court reporting. The entry prerequisites vary depending on the program and the institution. According to a 1988 survey, most students had completed at least secondary eduction before enrollment. Secretarial programs emphasizing legal work are offered by public institutions in all provinces except Prince Edward Island, Ontario, Manitoba and Alberta, and generally take about ten months for students to complete.

Graduate Trends and Projections

The number of graduates reflects the expected competition for similar kinds of jobs. This field has experienced a rise in relative popularity, with the number of graduates increasing from 124 in 1984 to 216 in 1987. Under current conditions, about 25% more students per year should complete this course than in the past.

Activity of Graduates

A larger-than-average proportion of these graduates pursued their studies on a part-time basis. The proportion of those working full-time was average, and of those working part-time was above average.

Graduates Who Entered the Labour Force

Survey data indicate the majority of these graduates found jobs as secretaries or stenographers in the business service industry, while smaller numbers found work in the legal profession as receptionists, information clerks and general office clerks. Two years after graduation, 1986 graduates earned about 15% less than the average for other graduates at this level, regardless of occupation. In general, graduates from these programs face job competition from trade/vocational and community college graduates with training in related fields of study. About 80% of 1982 graduates changed jobs between 1984 and 1987, generally, moving among secretarial, clerical and receptionist occupations. The average salary for 1982 graduates increased slower over the 1984-to-1987 period than the average for all graduates at this level.

The Course in Retrospect

A slightly greater-than-average proportion of these graduates (70%) would select the same educational program if the choice had to be made again. The proportions who found a job related to their educational training and who were satisfied with their work were higher than average, in spite of the fact that a larger-than-average proportion felt overqualified for their jobs and that earnings were comparatively low. This situation changed little over the 1984-to-1987 period, although job satisfaction grew and more graduates found employment related to their education.

Secretary (Legal)

Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	740	576	622	603	593
% Women Graduates	99.5	99.1	96.0	93.9	87.7
% of Total Graduates at this Level	1.5	1.0	1.1	1.1	1.1

Activity of Graduates	Secretary (Legal) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	1	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	5	7
Entered Labour Force	93	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	6	3
Average for all Fields at this Level	75	12	13

Working Full-time

Clerical
(74%)
- Secretaries and Stenographers (63%)
- Electronic Data Processing Operators (5%)

Social Sciences
(22%)
- Occupations in Law and Jurisprudence (20%)

Management and Administration
(4%)

Business, Commerce, Management and Administration

Secretary (Legal)

Career Program
Community College (2 years)

Individuals entering this field undergo training in basic secretarial skills such as keyboarding, shorthand and office management with an emphasis on legal duties similar to those of a law clerk or a court reporter. The admission requirements vary according to institution, but generally applicants must have some high school with a sound basis in English (French). Colleges often require an interview, as well as a diagnostic English (French) test and minimum standards in typing and shorthand. Students normally complete the program in two years, often as part of a CO-OP program combining work and study. The legal secretarial program is offered by community colleges in all provinces except Newfoundland, Nova Scotia, New Brunswick, Quebec and Saskatchewan. Women dominate this field, with men accounting for only 4% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course among students declined significantly over the 1981-to-1984 period and has since risen only marginally. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Perhaps as a result of the excellent job opportunities awaiting them, almost all legal secretary graduates entered the labour market immediately upon graduation. The proportion of students receiving their education on a part-time basis was well below average, implying that the course load was sufficiently heavy to require full-time attendance. Not only were a greater-than-average proportion of these graduates (97%) successful in finding a job, but almost all were working full-time.

Graduates Who Entered the Labour Force

Most legal secretary graduates find employment as secretaries in lawyers' offices or in various levels of government. Graduates from this course primarily face job competition from other community college graduates in the secretarial sciences and, to a lesser extent, secretarial graduates at the trade/vocational level.

Two years after graduation, 1986 graduates were earning about 10% less than others at this level, regardless of occupation. The proportion of 1982 graduates who were not working was the same in 1987 as it was in 1984, largely the result of decreases in full-time employment being balanced by increases in part-time employment. Between the third and fifth years after graduation, the average salary of legal secretary graduates increased at the same rate as the average of other community college graduates. During this period a slightly greater-than-average proportion (45%) change jobs, usually moving from secretarial to clerical or other legal occupations, such as law clerk.

The Course in Retrospect

The transition from school to work appeared to be a very positive experience for these graduates, since almost all indicated satisfaction with their current job. This probably results from a relatively strong match between field of study and current job, a lower-than-average unemployment rate and only average numbers feeling overqualified. This stands in contrast to the fact that a smaller-than-average proportion of legal secretaries were willing to repeat the same course of study if the decision had to be made again. Between the third and fifth years of their careers, these graduates tended to become disillusioned with their job, with a dramatically larger proportion feeling overqualified, fewer expressing satisfaction with their current job and fewer willing to repeat past educational decisions.

Secretary (Medical)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	294	180	175	159
% of Total Graduates at this Level	0.6	0.4	0.4	0.4

Activity of Graduates	Secretary (Medical) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	7
Did Not Enter Labour Force	0	4
Part-time Students Already in Labour Force	0	4
Entered Labour Force	95	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	56	27	17
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical (53%)
- Secretaries and Stenographers (24%)
- Medical Record Libraries (12%)
- Receptionists and Information Clerks (4%)

Medicine and Health (22%)
- Dental Hygienists and Dental Assistants (11%)
- Other Medical and Health (11%)

Services (14%)
- Travel Attendants (11%)

Managerial and Administrative (6%)

Other (5%)

Business, Commerce, Management and Administration

Secretary (Medical)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

Individuals entering this field obtain training in secretarial work emphasizing medical and health records technology. The entry requirements vary depending on the program and institution, although most students in these programs have completed high school. Institutions in the provinces of New Brunswick, Saskatchewan, Alberta and British Columbia offer secretarial programs focussing on medical needs. Students normally complete these programs in about ten months.

Graduate Trends and Projections

The number of graduates reflects the expected competition for similar kinds of jobs. This field has experienced a decline in relative popularity recently, with the number of graduates dropping from 294 in 1984 to 180 in 1987. Under current conditions about 10% fewer students per year will complete this course than in the past.

Activity of Graduates

All graduates in this field pursued their studies on a full-time basis and a larger-than-average proportion entered the labour force. Only an average proportion found jobs, however, and a much larger-than-average proportion worked part-time. The unemployment rate of these graduates approximated the average for other graduates at this level.

Graduates Who Entered the Labour Force

The majority of these graduates found jobs as secretaries or stenographers in the health and social service industries, while smaller numbers found jobs in medical records, welfare and community service and other occupations in medicine and health. Two years after completing their programs, 1986 graduates earned about 20% less than the average for other graduates at this level, regardless of occupation. Graduates generally face job competition from trade/vocational and community college graduates with certification in a secretarial or medical-related field of study. About 50% of 1982 graduates changed jobs between 1984 and 1987, usually leaving positions as secretaries, stenographers and general office clerks for work as receptionists, information clerks and electronic data processors. The average salary of 1982 graduates rose slower than the average for all other graduates at this level over the 1984-to-1987 period.

The Course in Retrospect

A much lower-than-average proportion of these graduates (50%) would select the same program of study if the choice had to be made again. This is in spite of the fact that a larger-than-average proportion found jobs related to their education, that a lower-than-average proportion felt overqualified for their work and that job satisfaction was high. This situation changed little between 1984 and 1987, with the exceptions that a much larger percentage found jobs related to their education and a much smaller percentage felt overqualified for their jobs in 1987 than in 1984.

Secretary (Medical)

Career Program
Community College (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	497	616	611	592	583
% Women Graduates	99.6	99.0	99.3	99.1	98.2
% of Total Graduates at this Level	1.0	1.0	1.0	1.0	1.0

Activity of Graduates	Secretary (Medical) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	2	7
Entered Labour Force	91	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	6	10
Average for all Fields at this Level	75	12	13

Working Full-time

Secretarial and Clerical (86%)
- Secretaries and Stenographers (62%)
- Clerks and Typists (10%)
- Receptionists (7%)

Management and Administration (8%)
- Administrators in Medicine and Health (4%)

Other (6%)

Business, Commerce, Management and Administration

Secretary (Medical)

Career Program
Community College (2 years)

People entering this field learn basic secretarial skills such as keyboarding, shorthand and office management with an emphasis on medicine and maintaining health records. The admission requirements vary depending on the institution, but generally applicants must have completed high school with a solid grounding in English (French) and mathematics. Colleges often require applicants to pass a diagnostic English (French) test, meet basic typing and shorthand standards, undergo an interview and pass a medical examination. Students usually take two years to complete these programs, often as part of a CO-OP program combining work and study. Medical secretarial programs are offered in all provinces except Newfoundland and New Brunswick. Virtually all 1987 graduates were women.

Graduate Trends and Projections

The relative popularity of this course among students remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Virtually all graduates from this program choose to look for a job immediately upon graduation. The number of students receiving their education on a part-time basis was almost nil, implying that full-time classroom participation was believed to be the most appropriate route for the successful completion of the program. Although a larger-than-average proportion of these graduates (90%) were successful in finding a job, they were less successful than other secretarial graduates in finding full-time employment.

Graduates Who Entered the Labour Force

Most medical secretary graduates find employment as secretaries in doctors' offices or in hospitals, while smaller numbers work as receptionists, clerk/typists or administrators in medicine and health. Graduates from this course primarily face job competition from other community college and trade/vocational graduates in the secretarial sciences.

Two years after graduation, 1986 graduates were earning about 10% less than others at this level, regardless of occupation. The proportion of these graduates who are not working declines dramatically over time, largely the result of increased full-time employment. Between the third and fifth years after graduation, the average salary of medical secretary graduates increased at a slower rate than the average for other community college graduates. During this period, a smaller-than-average proportion (35%) change jobs, with almost all movement occurring within the secretarial and clerical occupation groups.

The Course in Retrospect

The transition from school to work appeared to be an extremely positive experience for these graduates, as indicated by a very high rate of job satisfaction. This probably results from a strong match between field of study and current job, far fewer people feeling overqualified and a lower-than-average unemployment rate. Nevertheless, only one out of every two 1986 medical secretary graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates tended to become disillusioned with their job, with a larger proportion feeling overqualified, fewer feeling their job matched their training and slightly fewer being content with past educational decisions.

Secretary (Word Processing)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(4 months)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	293	785	764	693
% of Total Graduates at this Level	0.6	1.6	1.6	1.6

Activity of Graduates	Secretary (Word Processing) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	7
Did Not Enter Labour Force	10	4
Part-time Students Already in Labour Force	7	4
Entered Labour Force	80	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	78	10	12
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical (88%)	Managerial and Administrative (8%)	Other (4%)
• Secretaries and Stenographers (33%) • Electronic Data Processing Operators (25%) • Bookkeepers and Accounting Clerks (12%) • Receptionists and Information Clerks (6%)	• Personnel and Related Officers (2%)	

Business, Commerce, Management and Administration

Secretary (Word Processing)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(4 months)

People entering this field receive specialized training in the use of word processing packages and basic computer operations. Entry prerequisites vary depending on the program and institution, although most applicants have completed at least high school before entering. Courses last about four months and are offered in all provinces except Prince Edward Island, Ontario, Manitoba, Saskatchewan and Alberta.

Graduate Trends and Projections

The number of graduates reflects the expected competition for similar kinds of jobs. This course has grown in relative popularity recently, with graduates in the field increasing from 293 in 1984 to 785 in 1987. If this trend continues then the number of students completing the course will rise dramatically.

Activity of Graduates

Graduates in this field were more likely than others to pursue their studies on a part-time basis. About an average proportion of these graduates entered the labour force upon completion of their program and were more successful than other graduates in finding full-time work.

Graduates Who Entered the Labour Force

The majority of these graduates found work as secretaries or stenographers in the business service industry, while smaller numbers found work as electronic data processors, bookkeepers, accounting clerks, receptionists and information clerks. Two years after completing their studies, 1986 graduates from this field earned about 10% less than the average for other graduates at this level, regardless of occupation. Generally, graduates from this program face job competition from trade/vocational and community college graduates with qualifications in computer science, secretarial or business programs. About 65% of the 1982 graduates changed jobs between 1984 and 1987, but most continued to work in clerical occupations. The average salary for these graduates rose almost as fast between 1984 and 1987 as the average for other graduates at this level.

The Course in Retrospect

An average proportion of these graduates (70%) would select the same educational program if the choice had to be made again and an average proportion found jobs related to their educational training. Job satisfaction was also average, although a slightly larger-than-average proportion felt overqualified for their work. This situation changed somewhat between 1984 and 1987, as more graduates found part-time employment or jobs related to their education, and unemployment dropped dramatically.

Specialized Administration

Undergraduate
University (3 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	399	550	929	923	933
% Women Graduates	55.6	57.8	69.4	69.8	70.4
% of Total Graduates at this Level	0.4	0.5	0.8	0.7	0.7

Activity of Graduates	Specialized Administration Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	14
Did Not Enter Labour Force	2	5
Part-time Students Already in Labour Force	40	20
Entered Labour Force	56	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	9	7
Average for all Fields at this Level	80	10	10

Working Full-time

Managerial and Administrative (40%)	Medicine and Health (37%)	Clerical and Related (8%)	Other (15%)
• Sales and Advertising Managers (15%) • Personnel and Related Managers (7%) • Government Administrators (3%) • Post Office Management (2%) • Farm Managers (2%)	• Nursing (22%) • Supervisors: Nursing (15%)		• Service Occupations (6%) • Farming and Related Occupations (6%)

Business, Commerce, Management and Administration

Specialized Administration
Undergraduate
University (3 years)

This field of study covers specialized administration and management programs in the public sector, the health, hotel and food industries and other professions. The entry requirements vary according to the program and the university, but usually applicants must have obtained a high school diploma with above-average grades, especially in mathematics and English (or French). Quebec students must have a Diploma of Collegial Studies. Some universities offer diploma and certificate programs for students lacking high school diplomas but who demonstrate suitable experience and aptitude. Major universities in all provinces except Newfoundland, Manitoba and Alberta offer degree programs in specialized administration, which students typically complete within three years, sometimes as part of a CO-OP program combining work and studies. Women accounted for 70% of graduates from these programs in 1987, up from 56% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be more than one and one-half times larger over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

These graduates were less likely to continue their studies after graduating than others at this level. They were also somewhat less apt to look for work immediately upon graduating since the proportion who were already in the labour force and who completed their degrees through part-time study was sharply higher than the average. Once in the labour market, these graduates were somewhat more successful than other graduates in finding work, with the proportion obtaining full-time jobs somewhat higher than the average.

Graduates Who Entered the Labour Force

Reflecting the high proportion of these graduates who attended part-time (some form of occupational upgrading) most found managerial jobs in government, sales and advertising, health care and personnel management. They compete for these positions with other university and community college graduates in most fields of study, but especially those in commerce, political science and economics. Two years after graduation, regardless of occupation, these graduates earned roughly the average income for all graduates at this level. The average earnings of 1982 graduates, however, grew at a somewhat slower rate between 1984 and 1987 than the earnings of all graduates at this level. A large number of these graduates changed jobs between the third and fifth years of their careers, mainly moving within management and finance.

The Course in Retrospect

These graduates appeared to be somewhat unhappy with their educational experience, as a less-than-average proportion (60%) reported that they would make the same educational choices again. Although the proportion who found jobs matching their undergraduate training was about the same as the average for all other graduates, the proportion who believed themselves to be overqualified for their jobs was significantly above the average. Despite this, about 85% reported that they were satisfied with their jobs. Furthermore, overall circumstances for 1982 graduates improved significantly in terms of employment, job satisfaction and earnings over the 1984-to-1987 period.

Specialized Administration

Master's
University (2 years)

Business, Commerce, Management and Administration

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	246	455	456	455	432
% Women Graduates	40.7	43.5	49.8	50.7	50.4
% of Total Graduates at this Level	1.7	2.8	2.6	2.6	2.6

Activity of Graduates	Specialized Administration Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	6
Did Not Enter Labour Force	2	6
Part-time Students Already in Labour Force	37	33
Entered Labour Force	59	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	95	2	3
Average for all Fields at this Level	84	9	7

Working Full-time

Managerial and Administrative (74%)
- General Managers (16%)
- Other Managers and Administrators (14%)
- Administrators in Medicine and Health (11%)
- Organization Methods Analysts (9%)
- Personnel and Related (5%)

Social Sciences (13%)
- Social Workers (6%)
- Economists (3%)

Natural Sciences, Engineering and Mathematics (5%)
- Systems Analysts and Computer Programmers (3%)
- Community Planners (2%)

Other (8%)

Business, Commerce, Management and Administration

Specialized Administration

Master's
University (2 years)

At the graduate level, people in this field specialize in public administration, health care administration, or hotel and restaurant administration. The entry prerequisites vary depending on the university, but in general, applicants must have an undergraduate honours degree in a relevant field. Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference. Major universities throughout Canada, except those in Newfoundland and Prince Edward Island, offer graduate programs in specialized administration. Students can usually obtain their degrees within two years, sometimes through a CO-OP program combining work and study. A few universities offer graduate diploma or certificate programs that are shorter in duration but which require applicants to possess an undergraduate degree. Women accounted for 50% of all 1987 graduates, compared to 41% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose significantly over the 1981-to-1984 period and stabilized thereafter. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A slightly larger-than-average proportion of specialized administration graduates pursued their degrees on a part-time basis. Upon graduating, a much smaller proportion than average continued their education and a larger-than-average proportion entered the labour force. These graduates were also more successful in finding full-time work than other graduates at this level.

Graduates Who Entered the Labour Force

The majority of these graduates find work as general managers and administrators in government, while smaller numbers work as administrators in medicine and health and as organization and methods analysts. Regardless of occupation, 1986 specialized administration graduates were earning about 15% more than the average for all master's graduates by 1988. Graduates from this field of study generally encounter job competition from undergraduates and community college graduates with a degree, diploma or certificate in commerce or related fields. About 60% of 1982 graduates changed jobs between 1984 and 1987, usually moving out of management and administration into organization and methods analysis. The average salary of these graduates increased somewhat faster over the 1984-to-1987 period than did that of other master's graduates.

The Course in Retrospect

A larger proportion of specialized administration graduates (85%) than other graduates at this level would select the same educational program if the choice had to be made again. This reflects higher-than-average earnings, a negligible unemployment rate and the fact that a smaller proportion than average felt overqualified for their jobs. The proportions who felt their job matched their educational training and who were satisfied with their current job were about the same as the average. This situation changed little between the third and fifth years of their career, with the exceptions that job satisfaction and the proportion of graduates whose job was related to their education increased.

Education and Counselling

Education

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,268	2,531	2,508	2,450	2,409
% Women Graduates	89.7	89.5	90.0	90.3	91.3
% of Total Graduates at this Level	4.7	4.3	4.3	4.3	4.3

Activity of Graduates	Education and Counselling Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	25
Did Not Enter Labour Force	5	3
Part-time Students Already in Labour Force	13	7
Entered Labour Force	74	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	80	15	5
Average for all Fields at this Level	75	12	13

Working Full-time

Teaching (56%)
- Elementary and Kindergarten Teachers (36%)
- Teachers of Exceptional Students (15%)

Services (16%)
- Child-Care Workers (13%)

Social Sciences (9%)
- Social Workers (5%)
- Occupations in Welfare and Community Services (3%)

Other (19%)
- Management and Administration (5%)
- Clerical (5%)
- Sales (5%)

Education and Counselling

Career Program
Community College (2 years)

Individuals entering this field choose from a wide range of specializations, including childhood education, industrial arts, adult education, teacher training and addiction, marriage and financial counselling. The entry requirements vary depending on the discipline and the institution, but all applicants must possess a high school diploma with good grades in English (French), the social sciences and the humanities. Students normally complete these programs within two years, often as part of a CO-OP program combining work and study. Education and counselling programs are offered in all provinces except Newfoundland, Saskatchewan and British Columbia. Women make up the majority of graduates, accounting for 90% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course among students declined over the 1981-to-1984 period and has remained at this level since. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of students receiving their education on a part-time basis was greater than average, suggesting that this course is often pursued to satisfy personal interests or a need for skill upgrading. A much smaller-than-average proportion of these graduates continued their education upon graduating, with a larger proportion than average choosing to look for a job instead. This is fairly typical of graduates in the social services and social sciences fields. Although a larger-than-average proportion of these graduates were successful in finding a job, a larger proportion were working only part-time.

Graduates Who Entered the Labour Force

Most education/counselling graduates find employment as elementary or kindergarten teachers, while smaller numbers take positions as child-care workers, social workers, or teachers of exceptional students. Many of these students received their qualification on a part-time basis, indicating that they are already employed and are choosing this course for the purpose of career development or skills upgrading. Graduates from this course generally face job competition from community college and university graduates with elementary/secondary teacher training.

Two years after graduation, 1986 graduates were earning about 15% less than other graduates at this level, regardless of occupation. The proportion of these graduates who are not working declines over time, largely the result of increased full-time employment. Between the third and fifth years after graduation, the average salary of education/counselling graduates increases at a rate approximating the average for other community college graduates. During this period, an average proportion (40%) change jobs, usually moving from elementary/kindergarten teaching to occupations in welfare and community services, child-care and teaching exceptional students. Among 1982 graduates from this course who were working as child-care workers in 1984, about 90% were still in this field in 1987.

The Course in Retrospect

The transition from school to work appeared to be a relatively positive experience for these graduates, as indicated by a high level of job satisfaction. This probably results from a strong match between field of study and current job, fewer feeling overqualified and the comparative ease of finding a job. About two out of every three 1986 education/counselling graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, however, these graduates tended to become slightly disillusioned with their job, as a larger proportion felt overqualified, fewer felt their job matched their training and fewer were content with past educational decisions.

Education (Non-Teaching)

Undergraduate
University (2 years)

Education

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	477	701	709	727
% Women Graduates	74.6	65.5	65.8	66.4
% of Total Graduates at this Level	0.4	0.6	0.6	0.6

Activity of Graduates	Education (Non-Teaching) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	14
Did Not Enter Labour Force	0	5
Part-time Students Already in Labour Force	45	20
Entered Labour Force	52	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	88	12	0
Average for all Fields at this Level	80	10	10

Working Full-time

Social Sciences (37%)
- Psychologists (21%)
- Social Workers (11%)
- Educational and Vocational Counsellors (5%)

Teaching (27%)
- Elementary and Kindergarten Teachers (9%)
- Teachers of Exceptional Students (8%)
- Secondary School Teachers (5%)
- Elementary and Secondary School Teaching and Related (5%)

Managerial and Administrative (25%)
- Personnel and Related Officers (11%)
- Sales and Advertising Management (11%)
- Administrators in Teaching and Related Fields (3%)

Other (11%)

Education

Education (Non-Teaching)

Undergraduate
University (2 years)

People in the non-teaching education field specialize in educational measurement and evaluation, education psychology, and guidance and counselling. Applicants must complete high school with good grades in mathematics, biology and the social sciences. Quebec students must possess a Diploma of Collegial Studies. Some institutions offer programs leading to a diploma or certificate to individuals with relevant experience in other educational fields. Major universities in all provinces except Prince Edward Island and New Brunswick offer degree programs in these non-teaching fields, which are typically completed in about two years. Women accounted for 65% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose over the 1984-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates per year from this course will be about 20% more over the 1989-to-1995 period than it was between 1984 and 1987.

Activity of Graduates

An above-average proportion of non-teaching graduates obtained their degrees through part-time study, and only a very small proportion decided to continue their studies after graduating. Once in the labour force these graduates were more successful in finding work, both full- and part-time, than other graduates at this level as they experienced virtually no unemployment.

Graduates Who Entered the Labour Force

These graduates generally obtain work in teaching exceptional students, psychological counselling, and in organizational and methods analysis. They compete primarily with education graduates from universities for available jobs. Two years after graduation, these non-teaching graduates, regardless of occupation, earned somewhat less than the average for all graduates at this level. Furthermore, the average earnings of 1982 graduates rose significantly more slowly over the 1984-to-1987 period than the average for all other graduates. Few changed jobs between the third and fifth years of their careers, and those who did usually moved from educational and vocational guidance in schools to similar jobs in industry.

The Course in Retrospect

In general, these graduates were not very satisfied with their educational choices, as a much lower-than-average proportion indicated that they would make the same choices again. This reflects the lower-than-average earnings in this field and the lower-than-average proportion of graduates who found jobs matching their undergraduate training. The proportion who believed themselves to be overqualified for their jobs was about average. About 90% of these graduates were satisfied with their jobs, however, slightly more than the average. Overall conditions for these graduates improved somewhat in terms of employment and earnings between the third and fifth years of their careers.

Education (Non-Teaching)

Education

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,025	1,799	1,773	1,762	1,673
% Women Graduates	48.7	57.2	60.1	61.2	60.8
% of Total Graduates at this Level	14.1	11.0	10.0	10.0	10.0

Activity of Graduates	Education (Non-Teaching) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	6
Did Not Enter Labour Force	0	6
Part-time Students Already in Labour Force	69	33
Entered Labour Force	31	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	6	3
Average for all Fields at this Level	84	9	7

Working Full-time

Management and Administration (36%)
- Administrators in Education (19%)
- Personnel and Related Officers (6%)

Teaching (30%)
- Secondary School (15%)
- Elementary and Kindergarten (8%)
- Post-Secondary School (3%)

Social Sciences (19%)
- Educational and Vocational Counsellors (10%)
- Psychologists (5%)
- Welfare and Community Services (3%)

Other (15%)

Education (Non-Teaching)

Master's
University (2 years)

Individuals at the graduate level in this field obtain training in library science for schools, educational administration, educational psychology, guidance and counselling, and educational measurement and evaluation. Admission requirements vary depending on the university, but in general, applicants must have an undergraduate honours degree in this or a closely related field. Most universities generally require applicants to undergo an interview and provide letters of reference. The master's program in this field is offered by major universities in all provinces except Prince Edward Island and is typically completed within two years, sometimes as part of a CO-OP program combining work with study. Some universities offer graduate diploma or certificate programs that are shorter in duration but still require applicants to possess a related undergraduate degree. Women accounted for 60% of graduates in 1987, up from 49% in 1981.

Graduate Trends and Projections

The number of graduates is a good indication of the number of persons who will be competing for similar types of jobs. The relative popularity of this course declined over the 1981-to-1987 period, as the number of graduates fell from 2,025 in 1981 to 1,773 in 1987. Under current conditions, it is expected that the number of new graduates from this course will be about 10% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of these graduates who pursued their degree on a part-time basis was more than twice the average, which partially explains why a lower-than-average proportion entered the labour force for the first time after graduation and why none continued their education. These graduates were also noticeably more successful in finding full-time jobs than other master's graduates.

Graduates Who Entered the Labour Force

The majority of these graduates find work as educational administrators, while a smaller number work as elementary and secondary school teachers, and educational and vocational counsellors. Regardless of occupation, 1986 graduates earned more in 1988 than the average for all graduates at this level. Graduates from this field of study generally face job competition from undergraduates with a degree, diploma or certificate in elementary or secondary teaching, or in commerce.

Although 70% of 1982 graduates changed jobs between 1984 and 1987, only about 20% were doing different work; most moved out of elementary and secondary teaching into teaching administration or related areas. Their average salary increased about as fast over the 1984-to-1987 period as did that of other graduates at this level.

The Course in Retrospect

A slightly higher-than-average proportion of these graduates (80%) would select the same educational program if the choice had to be made again. This may reflect their higher-than-average earnings and the larger than average proportions who found jobs related to their training and expressed satisfaction with their current job. A larger-than-average proportion, however, felt overqualified for their position. This situation remained stable over the 1984-to-1987 period, except for a decrease in the proportion who felt overqualified.

Education (Non-Teaching)

Education

Doctorate
University (4 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	152	127	139	155	155
% Women Graduates	32.2	48.8	55.4	56.4	56.1
% of Total Graduates at this Level	8.4	6.8	5.8	5.8	5.8

Activity of Graduates	Education (Non-Teaching) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	35	20
Entered Labour Force	65	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	89	8	3
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching (45%)	Social Sciences (28%)	Managerial and Administrative (18%)	Other (9%)
• University Teachers (27%) • University Teaching and Related (9%)	• Psychologists (28%)	• Administrators in Teaching and Related Fields (18%)	

Education

Education (Non-Teaching)

Doctorate
University (4 years)

Individuals at the doctoral level in this field specialize in educational administration, educational psychology, guidance and counselling, and educational measurement and evaluation. Admission requirements vary depending on the university, but all applicants must have a master's degree in a related area and must demonstrate the ability to do research. Most universities require applicants to undergo an interview, provide letters of reference and have several years of relevant teaching experience. Doctoral programs, which students can normally finish within four years, are offered throughout Canada except in the Atlantic provinces. Women accounted for 55% of doctorates awarded in 1987, up sharply from 32% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined dramatically over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of individuals obtaining these doctorates through part-time study was significantly greater than the average for doctorates in all fields. All were already in the labour force or immediately entered it upon graduating, while none pursued post-doctoral study. Once in the labour market, these doctorates were somewhat more successful in finding work than other doctorates, with almost nine out of ten finding full-time work and the rest obtaining part-time employment. Consequently, their unemployment rates was below the average for all doctorates.

Graduates Who Entered the Labour Force

Doctorates in these non-teaching fields generally obtain employment as university professors, educational psychologists, educational administrators, and writers and editors. Generally, they face little if any competition for university teaching positions, although they must compete with doctorates from other fields as well as graduates at the bachelor's and master's levels in political science and psychology for the educational administration jobs. Two years after graduation, these doctorates earn significantly more than the average for all doctorates. The average earnings of the 1982 doctorates in this field, however, grew at a much slower rate between 1984 and 1987 than the average for all doctorates. Few of these doctorates change jobs between the third and fifth years of their careers; those who do, generally move into educational administration from teaching and educational psychology.

The Course in Retrospect

These doctorates were generally fairly pleased with their educational experience, as a higher-than-average proportion indicated that they would make the same educational choices again if given the opportunity. Almost all obtained jobs that matched their training, although a substantially higher-than-average proportion believed that they were overqualified for their jobs. About nine out of ten of these doctorates reported that they were satisfied with their jobs, somewhat below the average for all doctorates. The overall employment situation for these doctorates deteriorated somewhat between the third and fifth years of their careers, although their job satisfaction and earnings did improve.

Elementary/Secondary Teacher Training

Education

Undergraduate
University (3 years)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	14,321	14,037	14,451	14,996
% Women Graduates	72.4	72.3	72.7	73.4
% of Total Graduates at this Level	13.3	11.7	11.7	11.7

Activity of Graduates	Elementary/Secondary Teacher Training Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	14
Did Not Enter Labour Force	2	5
Part-time Students Already in Labour Force	29	20
Entered Labour Force	66	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	80	15	5
Average for all Fields at this Level	80	10	10

Working Full-time

Teaching (91%)	Managerial and Administrative (3%)	Other (6%)
• Elementary and Kindergarten Teachers (52%) • Secondary School Teachers (27%) • Elementary and Secondary School Teaching and Related Occupations (5%) • Teachers of Exceptional Students (3%)		

Education

Elementary/Secondary Teacher Training

Undergraduate
University (3 years)

People entering the teaching field undertake training in a wide range of areas such as art education, music education, vocational training, business education, adult/continuing education and elementary and secondary school teaching. The entry prerequisites vary depending on the institution, the province and the desired teaching specialty; thus music teachers require a background in music, whereas business teaching requires a knowledge of business management, computers and mathematics. Generally, however, applicants to education programs must have a high school diploma, or a Diploma of Collegial Studies in Quebec. Often students obtain another undergraduate degree before completing the education degree. Major universities in all provinces offer elementary and secondary teacher training degrees, which the student normally completes within three years, sometimes through a CO-OP program combining work and study. Many institutions offer diploma and certificate programs that are shorter in duration. Women dominate this profession, accounting for 72% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course declined significantly over the 1984-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

An above-average number of teaching graduates pursued their degrees on a part-time basis. Graduates in this field were more likely to be looking for a job upon graduation, since only a very small proportion decided to continue their studies. Once in the labour force they were more successful in finding work than other graduates, although a somewhat larger-than-average proportion were working only part-time. Their unemployment rate was about half the average.

Graduates Who Entered the Labour Force

In the job market, elementary and secondary teaching graduates primarily find work in the education system, competing among themselves and against graduates in physical education and various non-teaching education specialties for the available positions at public and private schools. Two years after graduation, 1986 graduates in elementary and secondary teaching earned about the same as the average for all graduates at this level. Between the third and fifth years of their careers, however, the average earnings of these graduates rose at a significantly slower rate than the average for other graduates at this level. Although many of these graduates change jobs between the third and fifth years of their careers, few actually leave the teaching profession.

The Course in Retrospect

In general, elementary and secondary teaching graduates feel very positive towards their educational experience, with about 75% indicating that they would make the same educational choices again. This reflects the fact that the proportion of graduates who found jobs matching their undergraduate training was above average and that the proportion who believed themselves to be overqualified for their jobs was below average. With their earnings matching the average of all fields, about 95% of all graduates in this field were satisfied with their jobs. The overall situation of these graduates improved in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Elementary/Secondary Teacher Training

Education

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,109	1,132	1,241	1,235	1,172
% Women Graduates	54.2	56.2	65.8	67.0	66.7
% of Total Graduates at this Level	7.7	6.9	7.0	7.0	7.0

Activity of Graduates	Elementary/ Secondary Teacher Training Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	6
Did Not Enter Labour Force	1	6
Part-time Students Already in Labour Force	58	33
Entered Labour Force	41	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	7	2
Average for all Fields at this Level	84	9	7

Working Full-time

Teaching (62%)
- Elementary and Kindergarten (28%)
- Secondary School (10%)
- University (8%)
- Fine Arts (6%)
- Post-Secondary School (4%)
- Teachers of Exceptional Students (4%)

Management and Administration (27%)
- Administrators in Education (12%)
- General Managers (8%)
- Personnel and Industrial Relations (6%)

Social Sciences (10%)
- Educational and Vocational Counsellors (5%)
- Psychologists (5%)

Other (1%)

Education

Elementary/Secondary Teacher Training

Master's
University (2 years)

Individuals in this field at the master's level specialize in a variety of teaching disciplines including art, music, commercial education, specialized education for the blind, deaf, gifted and emotionally and socially maladjusted, home economics, and adult and continuing education. The admission prerequisites vary depending on the university, but in general, applicants must have an honours undergraduate degree in a field closely related to the desired specialization. Most universities require applicants to undergo an interview, provide letters of reference and have several years of relevant teaching experience. The master's program in education is offered by major universities in all provinces except Prince Edward Island and generally can be finished within two years, sometimes as part of a CO-OP program combining study with work. Some universities offer graduate diploma or certificate programs that are shorter in duration but still require applicants to possess an undergraduate degree before admission. Women make up the majority of graduates, accounting for 66% of the 1987 total, compared to 54% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period but has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of these graduates who pursued their degree on a part-time basis (i.e., who were already employed and were simply upgrading their qualifications) was significantly higher than average. This partially explains why virtually none of these graduates immediately continued their education and why fewer were looking for a job after receiving their degrees than the average for all graduates at this level. These graduates were not only more successful than other master's graduates in finding a job, but a higher proportion took full-time employment.

Graduates Who Entered the Labour Force

The majority of these graduates find work as elementary and kindergarten teachers, while a smaller number work as secondary, fine arts and university teachers, and as educational administrators, and education and vocational counsellors.

Two years after graduation, 1986 graduates earned slightly more than the average for all graduates at this level, regardless of occupation. Between the third and fifth years of their careers, however, their average earnings rose significantly more slowly than did the average of other graduates at this level. Although many of these graduates change jobs between the third and fifth years of their careers, few actually leave the teaching profession, and most move from elementary and secondary teaching to administration in teaching and teaching exceptional students. Graduates from this field generally face job competition from undergraduates in the same area.

The Course in Retrospect

Elementary and secondary teaching graduates feel very positive towards their educational experience, with about 80% indicating that they would make the same educational choices again. Job satisfaction was above average, and coincided with above-average earnings and a higher-than-average proportion finding jobs that matched their graduate training. A slightly higher-than-average proportion, however, believed themselves to be overqualified for their jobs. The relative situation of elementary and secondary teaching graduates improved in terms of employment and earnings between the third and fifth years of their careers.

Elementary/Secondary Teacher Training

Education

Doctorate
University (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	35	62	65	72	72
% Women Graduates	60.0	43.5	50.8	51.7	51.4
% of Total Graduates at this Level	1.9	3.3	2.7	2.7	2.7

Activity of Graduates	Elementary/Secondary Teacher Training Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	39	20
Entered Labour Force	61	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	95	5	0
Average for all Fields at this Level	88	7	5

Working Full-time

Social Sciences (62%)
- Psychologists (40%)
- Educational and Vocational Counsellors (22%)

Teaching (18%)
- University Teaching (18%)

Medicine and Health (20%)
- Audiologists and Speech Language Therapists (20%)

Education

Elementary/Secondary Teacher Training

Doctorate
University (3 years)

At the doctorate level in this field people specialize in a variety of teaching disciplines including art, music, commercial education, specialized education for the blind, deaf, and emotionally and socially maladjusted, home economics, and adult and continuing education. The entry requirements vary depending on the university, but all applicants must have a master's degree in this field with high standing and must demonstrate the ability to do original research. Most universities require applicants to undergo an interview, provide letters of reference and have several years of relevant teaching experience. Doctorate programs in education, which students can complete within three years, are offered by major universities in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Manitoba. Women accounted for 51% of the 1987 doctorates, compared to 60% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose significantly over the 1981-to-1984 period but has since declined. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that about 120 more people will graduate from this course over the 1989-to-1995 period than did between 1981 and 1987.

Activity of Graduates

The proportion of elementary and secondary teaching doctorates who obtain their degrees through part time-study is almost twice the average for all other doctorates. All of these teaching doctorates who are not already in the labour force look for work upon graduating, as none continue in post-doctoral study. These doctorates were very successful in the labour market, with 95% finding full-time work and the remainder finding part-time work. This compares favourably to an average unemployment rate of about 5% for doctorates in all fields.

Graduates Who Entered the Labour Force

Doctorates in elementary and secondary teaching generally obtain employment as educational psychologists, vocational counsellors, university professors and audio and speech therapists in the education, health and social service sectors. Generally they compete only among themselves for the university teaching and audio and speech therapy positions, but must compete with psychology graduates at all levels for the psychologist and educational counselling jobs. Within two years of graduation these doctorates earn substantially more than all doctorates on average. Moreover, the average earnings for 1982 doctorates in elementary and secondary teaching rose somewhat more quickly than the average earnings of all other doctorates between 1984 and 1987. Virtually none of these doctorates changed jobs between the third and fifth years of their careers.

The Course in Retrospect

In general, doctorates in elementary and secondary teaching were very pleased with their educational experience, with more than 90% indicating that they would make the same educational decisions again, given the opportunity. This figure is significantly above the average for all other doctorates. All these doctorates obtained jobs matching their training, but a substantially higher-than-average proportion believed that they were overqualified for their jobs. All indicated that they were satisfied with their jobs, however, and overall conditions for these graduates improved significantly between the third and fifth years of their careers in terms of employment, job satisfaction and earnings.

Physical Education

Undergraduate
University (3 years)

Education

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	3,003	2,636	3,014	3,129	3,267
% Women Graduates	49.2	55.4	53.5	53.7	54.2
% of Total Graduates at this Level	3.0	2.4	2.5	2.5	2.5

Activity of Graduates	Physical Education Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	20	14
Did Not Enter Labour Force	4	5
Part-time Students Already in Labour Force	19	20
Entered Labour Force	57	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	77	16	7
Average for all Fields at this Level	80	10	10

Working Full-time

Teaching (35%)
- Secondary School (22%)
- Elementary and Kindergarten (7%)
- University Teaching & Related (2%)
- Elementary and Secondary Teaching and Related (2%)
- Teachers of Exceptional Students (2%)

Managerial and Administrative (14%)
- Organization and Methods Analysts (3%)
- General Managers (3%)
- Management, Social Sciences & Related Fields (2%)

Artistic, Literary and Recreational (11%)
- Coaches, Trainers and Instructors in Sports and Recreation (11%)

Social Sciences (8%)
- Welfare and Community Services (4%)
- Social Workers (2%)
- Lawyers and Notaries (2%)

Other (32%)
- Sales (7%)
- Medicine and Health (6%)
- Services (6%)
- Clerical (5%)

Physical Education

Undergraduate
University (3 years)

Individuals entering this field specialize in physical education and the closely related disciplines of kinanthropology, kinesiology and recreation. Applicants must possess a high school diploma with a solid grounding in biology, mathematics, chemistry and physics; Quebec students must complete a Diploma of Collegial Studies. They must also usually pass physical fitness tests, and often must undergo an interview. Universities in all provinces except Prince Edward Island and New Brunswick offer physical education programs, which students normally complete in slightly more than three years, sometimes as part of a CO-OP program combining work and study. Some institutions offer diploma or certificate programs that are shorter in duration. Women accounted for 53% of all graduates in 1987.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period and stabilized thereafter. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of physical education graduates who obtained their degrees through part-time study was about average. In addition, a larger-than-average proportion decided to continue their education after graduating, perhaps a response to stringent hiring requirements in their field. Consequently, these graduates were less likely to enter the labour market immediately. When looking for employment, however, these graduates were somewhat more successful than their counterparts in finding it, although a larger-than-average proportion were working only part-time. Consequently their rates of unemployment were somewhat lower than for all other graduates at this level.

Graduates Who Entered the Labour Force

Graduates in physical education generally look for work as teachers, coaches and trainers. They compete with university graduates in education for the available teaching positions, and with other university and community college graduates in physical education for the coaching and training positions. Two years after graduation, 1986 graduates earned less than the average income for all graduates at this level, regardless of occupation. Moreover, their earnings rose at a significantly slower pace between 1984 and 1987 than the average. Many teaching graduates change jobs between the third and fifth years of their careers, usually moving from coaching and training positions in schools into similar jobs in the service and recreation sectors.

The Course in Retrospect

Physical education graduates were somewhat unhappy with their educational experience, as the proportion indicating that they would make the same educational choices again was lower than the average for all other graduates. This dissatisfaction apparently reflected the relatively low average earnings for graduates in this field. Both the proportion of physical education graduates who found jobs matching their undergraduate training and the proportion who believed themselves to be overqualified for their jobs was about average for all graduates at this level. About 90% of all physical education graduates reported that they were satisfied with their jobs, virtually the same as for all graduates. Furthermore, overall conditions for physical education graduates improved between the third and fifth years of their careers in terms of employment, job satisfaction and earnings.

Physical Education

Education

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	195	169	238	237	225
% Women Graduates	38.5	44.4	49.2	50.0	49.8
% of Total Graduates at this Level	1.4	1.0	1.3	1.3	1.3

Activity of Graduates	Physical Education Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	16	6
Did Not Enter Labour Force	7	6
Part-time Students Already in Labour Force	24	33
Entered Labour Force	53	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	60	24	16
Average for all Fields at this Level	84	9	7

Working Full-time

Teaching (41%)
- Elementary and Kindergarten (16%)
- Secondary School (15%)
- University (8%)

Managerial and Administrative (25%)
- General Managers (10%)
- Financial Management (8%)
- Sales Advertising Management (7%)

Artistic, Literary and Recreational (8%)
- Occupations in Sport and Recreation (8%)

Other (26%)

Physical Education

Master's
University (2 years)

At the master's level, people in this field specialize in kinesiology, human kinetics, kinanthropology, recreation and physical education. The entry requirements vary depending on the university, but in general, applicants must have an undergraduate honours degree in a field closely related to their desired specialization. Most universities require applicants to pass an interview, provide letters of reference and demonstrate proficiency in a chosen sport. Most universities give preference to applicants with several years of relevant teaching experience. The master's program in this field is offered by major universities in all provinces except Prince Edward Island and Manitoba and can generally be completed within two years, sometimes as part of a CO-OP program combining work with study. Some universities offer graduate diploma or certificate programs that are shorter in duration but still require applicants to possess a related undergraduate degree. Women accounted for 49% of all 1987 graduates, up sharply from 38% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period but has since risen almost to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Slightly fewer physical education graduates than other master's graduates pursued their degree on a part-time basis. A much higher proportion continued their education after receiving their degree and thus were less likely to enter the labour force immediately. They were also much less successful in the job market, with a much greater proportion working part-time and an unemployment rate that was more than double the average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as elementary and kindergarten teachers, while a small number work as secondary school teachers, university teachers, general managers, sales and advertising managers and in sports and recreation occupations. They generally face job competition from undergraduates with a degree, diploma or certificate in elementary and secondary teaching. Two years after graduation, these 1986 graduates earned conspicuously less than the average for all master's graduates, regardless of occupation.

While about 55% of these graduates changed jobs between 1984 and 1987, only about 20% were doing different work. Those who followed different occupations usually moved out of welfare and community services, and coaching and training into supervisory positions in sports and recreation, or moved out of elementary teaching into secondary school teaching. The average salary of these graduates increased somewhat more slowly over the 1984-to-1987 period than did that of other graduates at this level.

The Course in Retrospect

Generally, physical education graduates did not feel particularly positive toward their educational experience, with only about 55% indicating that they would make the same educational choices again. Those who found employment were more likely than average to find it in a field related to their education and to express satisfaction with their jobs. However, they earned less than the average salary for other graduates at this level, and this situation changed little over the 1984-to-1987 period.

Physical Education

Doctorate
University (3 years)

Education

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	12	11	21	23	23
% Women Graduates	25.0	36.4	28.6	29.1	28.9
% of Total Graduates at this Level	0.7	0.6	0.9	0.9	0.9

Activity of Graduates	Physical Education Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	30	20
Entered Labour Force	65	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	89	11	0
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching
(75%)
- University Teaching (49%)
- University Teaching and Related (25%)

Natural Sciences
(25%)
- Systems Analysts and Computer Programmers (25%)

Physical Education

Doctorate
University (3 years)

At the doctoral level, people in this field specialize in kinesiology, human kinetics, kinanthropology and recreation, in addition to physical education. The entry requirements vary depending on the university, but applicants must have a master's degree in a special field and must demonstrate the ability to do research. Most universities require applicants to undergo an interview, provide letters of reference, demonstrate proficiency in a chosen sport and have several years of relevant teaching experience. Doctoral programs, which students can typically finish within three years, are offered by major universities in Quebec, Ontario, Alberta and British Columbia. Women accounted for 29% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course held fairly constant over the 1981-to-1984 period and rose slightly thereafter. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that about 65 more people will graduate from this course over the 1989-to-1995 period than between 1981 and 1987.

Activity of Graduates

An above-average proportion of these doctorates were completed on a part-time basis, with many candidates already holding a job. Upon completion, virtually all immediately entered the labour market and only a few continued in post-doctoral study. Once in the labour market, about nine out of ten found full-time work, while the rest obtained part-time employment. These figures compare favourably with an average unemployment rate of 5% for doctorates in all other fields.

Graduates Who Entered the Labour Force

Doctorates in physical education generally find employment as university teachers and coaches or trainers; some, however, leave the field to find work as systems analysts and computer programmers. They compete virtually entirely among themselves for the university teaching positions but face competition from computer science and commerce graduates at the undergraduate and graduate level for the computer programming jobs. Two years after graduation, 1986 graduates earned incomes approximately equal to the average of all doctorates. The average earnings of 1982 graduates grew somewhat more slowly between 1984 and 1987 than the average earnings of all doctorates. Virtually none of the doctorates in this field changed jobs between the third and fifth years of their careers.

The Course in Retrospect

In general, doctorates in physical education were fairly unhappy with their educational experience, with only about one in two indicating that they would make the same educational decisions again, substantially below the average for all doctorates. Most physical education doctorates obtained jobs matching their training, but a significantly greater-than-average proportion believed that they were overqualified for their jobs. Nonetheless, they all expressed satisfaction with their jobs, and their overall situation improved significantly between the third and fifth years of their careers in terms of employment and earnings, although it deteriorated in terms of job satisfaction.

Sports and Recreation

Education

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,534	1,623	1,627	1,563	1,537
% Women Graduates	76.5	73.9	75.4	76.4	79.4
% of Total Graduates at this Level	3.2	2.7	2.8	2.8	2.8

Activity of Graduates	Sports and Recreation Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	12	25
Did Not Enter Labour Force	2	3
Part-time Students Already in Labour Force	3	7
Entered Labour Force	83	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	11	5
Average for all Fields at this Level	75	12	13

Working Full-time

Clerical
(35%)
- Travel Clerks (18%)
- Receptionists (4%)
- Electronic Data Processing Operators (3%)
- Bookkeepers and Accounting Clerks (3%)

Services
(17%)
- Protective Services (8%)
- Child Care Workers (3%)

Social Sciences
(9%)
- Occupations in Welfare and Community Services (8%)

Other
(39%)
- Management and Administration (10%)
- Artistic, Literary and Recreational (5%)
- Sales (5%)

Sports and Recreation

Career Program
Community College (2 years)

People who enter this field receive training as physical education instructors, travel agents/counsellors, ticket agents, and park and wildlife officers. The admission requirements vary depending on the program and the institution, although generally students must have a high school diploma with good grades in English (French) and sometimes mathematics and biology. Most colleges require applicants to pass a diagnostic English (French) test, have some related work experience and perhaps undergo an interview and medical examination. Students can usually finish their studies in two years, often as part of a CO-OP program combining work and study. Community colleges in all provinces except Prince Edward Island, New Brunswick, Manitoba and Saskatchewan graduated students from these programs in 1987. Women dominate this field, accounting for 75% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course among students declined over the 1981-to-1984 period and has remained stable ever since. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly smaller-than-average proportion of these graduates continued their education upon graduating, with a much larger proportion than average choosing to look for a job instead. This is fairly typical of graduates in the social services and social sciences fields. The proportion of students receiving their education on a part-time basis was about nil, implying that full-time classroom participation was the most appropriate method to achieve the diploma/certificate. Although a larger-than-average proportion of these graduates were successful in finding a job, 10% were working only part-time.

Graduates Who Entered the Labour Force

Most graduates from this course find employment as travel clerks in the travel service industry, while smaller numbers work in occupations in welfare and community service. This occupation distribution reflects the variety of course concentrations offered within this field of study. Graduates from this course generally face job competition from other community college graduates from this course and from university graduates in the humanities.

Two years after graduation, 1986 graduates were earning about 10% less than others at this level, regardless of occupation. The proportion of these graduates who are not working declines dramatically over time, largely as a result of increased part-time employment. Between the third and fifth years after graduation, the average salary of sports and recreation graduates increases at a slightly faster rate than the average for other community college graduates. Over this period, a greater-than-average proportion (50%) change jobs, usually moving from travel clerks or occupations in welfare and community service to management occupations. Roughly 70% of all 1982 graduates from this course who were travel clerks in 1984 remained in this field in 1987.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a high level of job satisfaction. This is probably a reflection of the relatively strong match between field of study and current job, although larger numbers than average felt overqualified for their current job and salaries were lower than average. Nonetheless, only one out of every two 1986 sports and recreation graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates tended to become disillusioned with their job with a larger proportion feeling overqualified, fewer feeling their job matched their training, and fewer being content with past educational decisions.

Teaching (Other)

Undergraduate
University (3 years)

Education

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	1,204	1,229	1,259	1,301
% Women Graduates	76.2	79.2	79.6	80.3
% of Total Graduates at this Level	1.1	1.0	1.0	1.0

Activity of Graduates	Teaching (Other) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	14
Did Not Enter Labour Force	0	5
Part-time Students Already in Labour Force	28	20
Entered Labour Force	67	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	68	29	3
Average for all Fields at this Level	80	10	10

Working Full-time

Teaching
(94%)
- Elementary and Kindergarten Teachers (61%)
- Secondary School Teachers (11%)
- Elementary and Secondary School Teaching and Related Occupations (11%)
- Post-Secondary School Teachers (6%)
- Teachers of Exceptional Students (5%)

Clerical and Related
(6%)

Education

Teaching (Other)

Undergraduate
University (3 years)

This field of study involves the training of teachers for both the pre-school and the post-secondary levels. Applicants must possess a high school diploma (a Diploma of Collegial Studies in Quebec) with a solid grounding in the sciences and humanities. Many universities require candidates in early childhood education to have some experience working with young children. Students must possess a first degree or specialized vocational experience to enter the post secondary teacher training program. Universities in all provinces except those in Atlantic Canada provide training in pre-school and post-secondary teaching which students normally complete within three years sometimes as part of a CO-OP program combining study with work. Some universities in Ontario and British Columbia offer undergraduate certificate programs that are generally shorter in duration than the degree programs. Women make up the majority of graduates, accounting for 79% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1984-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that over the 1989-to-1995 period there will be about 10% more graduates, per year, than there were over the 1984-to-1987 period.

Activity of Graduates

The proportion of these specialized teaching graduates who pursued their degrees on a part-time basis was above average. These graduates were more apt to look for work immediately upon graduation and only a very small proportion decided to continue their studies. Once in the labour force they had more difficulty in finding full-time work than other graduates but were quite successful in finding part-time work, and thus their rates of unemployment were significantly lower than the average for all graduates at this level.

Graduates Who Entered the Labour Force

When looking for work, these graduates compete with other education graduates from universities and community colleges for positions in education. For teaching positions at the elementary and secondary school level, they compete with elementary and secondary teaching graduates and physical education graduates. Within two years of graduation, 1986 graduates earned somewhat less than the average for all graduates at this level, regardless of occupation. Further, the average earnings of 1982 graduates rose at a significantly slower rate over the 1984-to-1987 period than the average earnings for all other graduates at this level. Very few of these specialized teachers changed jobs between the third and fifth years of their careers.

The Course in Retrospect

In general, these graduates were very pleased with their educational experience, with almost 90% reporting that they would make the same educational choices again. The proportion of these graduates who obtained jobs matching their undergraduate training was above average, while the proportion of graduates who believed themselves to be overqualified for their jobs was about average. Despite their below-average earnings, virtually all graduates in these specialized teaching fields expressed satisfaction with their jobs. Moreover, overall conditions for these graduates between the third and fifth years of their careers improved in terms of employment, job satisfaction and earnings.

Teaching (Other)

Master's
University (2 years)

Education

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	154	91	314	315	299
% Women Graduates	64.9	82.4	72.9	74.3	73.9
% of Total Graduates at this Level	1.1	0.6	1.8	1.8	1.8

Activity of Graduates	Teaching (Other) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	6
Did Not Enter Labour Force	3	6
Part-time Students Already in Labour Force	58	33
Entered Labour Force	39	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	85	13	2
Average for all Fields at this Level	84	9	7

Working Full-time

Teaching (43%)
- Elementary and Kindergarten (26%)
- Community College and Vocational School (10%)
- Secondary School (4%)

Social Sciences (30%)
- Educational and Vocational Counsellors (10%)
- Social Workers (8%)
- Welfare and Community Services (8%)
- Psychologists (4%)

Management and Administration (25%)
- Personnel and Industrial Relations (9%)
- Service Management (8%)
- Sales, Advertising and Marketing (7%)

Other (2%)

Teaching (Other)

Master's
University (2 years)

At the graduate level, people in this field undertake more intensive training in such specialties as post-secondary teaching, kindergarten and preschool teaching. Entry requirements vary depending on the university, but in general, applicants must have an honours degree either in this field or in a field closely related to the desired specialization. Most universities require applicants to undergo an interview, provide letters of reference and posses several years of relevant teaching experience. The master's program in this field is offered by major universities only in Quebec, Ontario and Alberta. Generally, students can finish their master's degrees within two years, sometimes as part of a CO-OP program combining work with academics. Some universities offer special graduate diploma or certificate programs that are shorter but still require applicants to possess a relevant undergraduate degree. Women make up the majority of graduates, accounting for 73% of the 1987 total.

Graduate Trends and Projections

After declining over the 1981-to-1984 period the relative popularity of this course rose significantly over the 1984-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course over the 1989-to-1995 period will be about double what it was between 1981 and 1987.

Activity of Graduates

More of these graduates compared to the average of master's graduates pursued their degrees on a part-time basis, as many were already employed. No doubt, this is why a lower proportion than average entered the labour market and why none continued their education. Not only were these graduates more apt to be working than other master's graduates, but also they were notably more successful in finding full-time jobs and had a very low unemployment rate.

Graduates Who Entered the Labour Force

The majority of these graduates work as elementary and kindergarten teachers in the education service industry, while a smaller number work as community college or vocational school teachers, educational and vocational counsellors, social workers, and in welfare and community service. Regardless of occupation, these 1986 graduates earned slightly less than the average for all master's graduates in 1988. Job competition in this field of study generally comes from undergraduates with a degree, diploma or certificate in elementary or secondary teacher-training.

About 70% of 1982 graduates changed jobs between 1984 and 1987 although most remained in the same field. Most changes were from secondary teaching positions into post-secondary teaching or from elementary into secondary teaching.

The Course in Retrospect

Generally, these teaching graduates feel positive about their educational experiences, with some 75% indicating that they would pursue the same educational program again. This attitude may reflect their much higher-than-average probabilities of finding related employment. A slightly lower-than-average salary together with a higher-than-average proportion who feel overqualified for their job resulted in a slightly lower-than-average degree of job satisfaction. This situation changed little over the 1984-to-1987 period, except that by 1987 a larger proportion of these graduates felt overqualified for their job.

Architectual Design/Draughting Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(1 year)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	164	210	204	185
% of Total Graduates at this Level	0.3	0.4	0.4	0.4

Activity of Graduates	Architectural Design/ Draughting Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	13	7
Did Not Enter Labour Force	4	4
Part-time Students Already in Labour Force	3	4
Entered Labour Force	80	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	87	2	11
Average for all Fields at this Level	74	9	17

Working Full-time

Natural Sciences and Engineering (66%)
- Draughting (53%)
- Surveyors (4%)
- Architectural Technologists and Technicians (4%)
- Engineering Technologists and Technicians (4%)

Services (11%)
- Food and Beverage Service (4%)

Transport Equipment Operating (8%)
- Truck Drivers (8%)

Other (15%)
- Equipment Operators (7%)
- Sales Occupations (4%)
- Clerical and Related (4%)

Engineering and Engineering Technologies

Architectural Design/Draughting Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(1 year)

In this field, people study the basic concepts and principles of architectural draughting, architectural art, civil and structural technology and layout design. Entry prerequisites vary depending on the type of program (pre-employment or skill upgrading) and the institution, but students generally possess at least a high school diploma before enrollment. This program is offered at the trade/vocational level in Newfoundland, Nova Scotia, Manitoba and British Columbia and is normally completed in one year.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. This field has retained its popularity in recent years, as the total number of students completing these programs rose from 164 in 1984 to 210 in 1987. Under current conditions, the number of graduates is expected to decline by about 10% per year.

Activity of Graduates

The proportion of students who complete these programs in architectural design and draughting technologies through part-time study is about average for all trade school students, but the proportion who continue their education after graduation is twice the average, suggesting that further studies in this field enhance career prospects. As a result, graduates in this field were somewhat less likely than other trade students to look for employment immediately upon graduation. Graduates completing these architectural draughting programs were much more successful than other trade school students in finding employment. Almost nine of every ten of these architectural draughting graduates found full-time employment, significantly above the average for all trade school students. The rate of unemployment for these architectural draughting graduates was considerably lower than the average for all other trade school graduates, with about one in every ten of these 1986 students being out of work in 1988.

Graduates Who Entered the Labour Force

Graduates of these programs primarily find jobs as architectural draughters and surveyors in the business services industry. A large proportion, however, obtain employment in a variety of fields unrelated to their training. When looking for work these graduates compete primarily among themselves and with community college graduates from similar programs for draughting and surveying positions. Two years after graduation, 1986 graduates in architectural design and draughting earned somewhat more than the average income of all trade graduates, regardless of occupation. The average earnings of 1982 graduates, however, grew at a slightly slower rate between 1984 and 1987 than the average earnings of all other trade school students. Many graduates change jobs between the third and fifth years of their careers.

The Course in Retrospect

Architectural design and draughting trade graduates were fairly happy with their educational experience, with an average proportion reporting that they would make the same educational choices again. The share of graduates who found jobs matching their training was somewhat below the average for all trade school students, reflecting a weakness in demand in the field, and the proportion who believed themselves to be overqualified for their jobs was above the average. Nonetheless, more than 90% of the graduates reported that they were satisfied with their jobs. Survey results show that overall working conditions for these 1982 architectural draughting trade graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Architectural Design/Draughting Technologies

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	734	712	710	688	677
% Women Graduates	23.2	26.1	24.6	22.6	17.4
% of Total Graduates at this Level	1.5	1.2	1.2	1.2	1.2

Activity of Graduates	Architectural Design/ Draughting Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	7	7
Entered Labour Force	81	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	93	0	7
Average for all Fields at this Level	75	12	13

Working Full-time

Natural Sciences, Engineering and Mathematics (61%)
- Draughting Occupations (40%)
- Architectural Technologists/ Technicians (16%)

Management and Administration (19%)
- Construction Management (5%)
- Other Managers (3%)
- Government Inspectors (2%)
- General Managers (2%)

Construction Trades (5%)
- Foremen/ women: Construction Trades (3%)

Other (15%)
- Services (4%)
- Clerical (3%)
- Sales (3%)
- Processing (2%)

Engineering and Engineering Technologies

Architectural Design/Draughting Technologies

Career Program
Community College (2 years)

People entering this field study architectural and structural draughting, architectural art, civil and structural technologies, draughting and layout design. Admission requirements vary depending on the institution, but in general, applicants must have completed high school with good grades in English, mathematics and the sciences. Normally these programs take up to two years for a technician's certificate and up to three years for a technologist's diploma and can sometimes be completed through a CO-OP program combining work and study. Community colleges in all provinces except Nova Scotia and New Brunswick offer instruction in these architectural technologies, although architectural technology is taught within civil technology in New Brunswick. Men make up the majority of graduates, with women accounting for 25% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course declined slightly over the 1981-to-1984 period and has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 5% less over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

A smaller proportion of these graduates than others at this level continued their education and, as is typical for graduates from the engineering technology fields of study, a much larger proportion than average chose to look for a job immediately upon graduation. The proportion of students receiving their diploma or certificate on a part-time basis was average. Not only were a larger-than-average proportion of these graduates (93%) successful in finding a job, but all were employed full-time.

Graduates Who Entered the Labour Force

Most graduates in this field work in draughting occupations in the business services industry, while a smaller number work as architectural technologists and technicians or construction managers. They generally face job competition from other community college graduates in other engineering technologies and civil technologies, trade/vocational graduates in draughting and university graduates in mechanical engineering.

Two years after graduation, 1986 graduates were earning about 5% more than other graduates at this level, regardless of occupation. Furthermore, as the time after graduation increased, the proportion of these graduates who were not working declined. Between the third and fifth years after graduation, the average salary of these graduates increased at the same rate as the average for other community college graduates. Between the third and fifth years of their career, a significantly larger-than-average proportion (60%) changed jobs, usually moving from draughting occupations to positions as architects, government inspectors or mechanical engineers and from architectural technologist/technician jobs to draughting occupations.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by almost all (97%) being satisfied with their current job. This probably results from a relatively strong match between field of study and current job, fewer numbers feeling overqualified and a larger-than-average salary. Almost seven out of every ten 1986 graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers these graduates tended to become more content with their job, with a greater proportion feeling their job matched their training and more being content with past educational decisions, although a larger proportion felt overqualified in 1987 than did in 1984.

Construction Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(8 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	2,700	2,453	2,386	2,166
% of Total Graduates at this Level	5.3	5.0	5.0	5.0

Activity of Graduates	Construction Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	7
Did Not Enter Labour Force	5	4
Part-time Students Already in Labour Force	4	4
Entered Labour Force	84	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	76	0	24
Average for all Fields at this Level	74	9	17

Working Full-time

Construction Trades (57%)
- Carpenters and Related (23%)
- Pipefitting, Plumbing and Related (13%)
- Brick and Stone Masons and Tile Makers (9%)

Product Fabricating, Assembling and Repairing (13%)
- Cabinet and Wood Furniture Makers (6%)
- Wood Product Fabricating, Assembling and Related (2%)

Other (30%)
- Machining and Related (4%)
- Service (4%)
- Transport Equipment Operators (3%)
- Material Handling and Related (3%)

Engineering and Engineering Technologies

Construction Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(8 months)

Individuals entering this field specialize in a variety of construction activities including masonry, plastering, heat/insulation, plumbing, interior finishing, metal working, wood working and carpentry. The basic entry requirements vary depending on the program (pre-employment or skill upgrading) and the institution, but most students have completed at least their secondary education. Instruction in these trades is offered in all provinces except Prince Edward Island, and students take about eight months to finish. Further training occurs on the job, often as part of an apprenticeship program.

Graduate Trends and Projections

The number of graduates reflects the expected level of competition for similar types of jobs. The relative popularity of this course has declined in recent years, as the total number of students completing these programs has fallen from 2,700 in 1984 to 2,453 in 1987. Under current conditions, about 10% fewer students per year should complete this course than in the past.

Activity of Graduates

The proportion of students who complete these programs through part-time study is about average for all trade/vocational students. Only a few of the students in construction technologies continue their education upon graduating, although some may upgrade their skills through apprenticeship training. Students in these programs are just as likely as other trade/vocational graduates to look for employment upon finishing their education, but they are much less successful in finding employment: about 75% of 1986 graduates found full-time employment and virtually none of the rest found part-time work, resulting in an unemployment rate significantly above the average.

Graduates Who Entered the Labour Force

Students completing programs in construction technologies primarily find jobs as carpenters, brick and stone masons, tile layers, pipe fitters, plumbers, and cabinet and furniture makers. They are concentrated in the trade contracting, building, developing, and general contracting industries, as well as the wood and furniture industries. When looking for work, students from these courses compete primarily with community college graduates in similar programs. Two years after graduation, 1986 graduates earned somewhat more than the average of all students at this level, regardless of occupation. Furthermore, the average earnings of 1982 graduates grew slightly faster than average between 1984 and 1987. Many of these graduates change jobs between the third and fifth years of their careers, with most switching between construction trades and construction management positions.

The Course in Retrospect

Students completing these construction technology programs were fairly happy with their educational experience, as a somewhat higher-than-average share reported that they would make the same educational choices again. The proportion who found jobs matching their training was slightly below the average, perhaps reflecting the weakness in demand for these workers, and the proportion who believed themselves overqualified for their jobs was significantly above the average. Nonetheless, 90% reported that they were satisfied with their jobs, slightly below the average for all trade/vocational graduates. Overall working conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Welding Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(8 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	4,446	3,434	3,341	3,032
% of Total Graduates at this Level	8.7	7.0	7.0	7.0

Activity of Graduates	Welding Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	7
Did Not Enter Labour Force	3	4
Part-time Students Already in Labour Force	3	4
Entered Labour Force	86	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	77	2	21
Average for all Fields at this Level	74	9	17

Working Full-time

Machining and Related (48%)

- Welding and Flame Cutting (43%)
- Sheet Metal Workers (1%)

Construction Trades (10%)

- Glaziers (2%)
- Pipefitting and Plumbing and Related (1%)

Product Fabricating, Assembling and Repairing (8%)

- Industrial, Farm and Construction Machinery Mechanics and Repairers (3%)
- Motor Vehicle Mechanics and Repairers (1%)

Other (34%)

- Sales (5%)
- Processing (5%)
- Crafts and Equipment Operating (4%)
- Clerical and Related (4%)
- Transport Equipment Operating (3%)

Welding Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(8 months)

In this field, people specialize in electric, pipeline and shipyard welding, and structural steel fitting and welding. The entry requirements vary depending on the type of program (pre-employment or skill upgrading) and the institution, but students usually have completed high school before enrollment. Welding programs are offered by institutions in all provinces except Prince Edward Island, and generally take about eight months to complete. Normally students take further training on the job, often as part of an apprenticeship program.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. Welding trades have fallen somewhat in popularity among students in recent years, with the total number of graduates dropping from 4,446 in 1984 to 3,434 in 1987. Under current conditions, about 20% fewer students per year should complete this course than in the past.

Activity of Graduates

The proportion of students who complete these programs through part-time study is about average, as is the proportion who continue their education upon graduating, although many upgrade their skills through apprenticeship training. Students in welding technologies are just as likely as other trade/vocational students to look for employment after graduation, although they are less successful in finding jobs: while more than three out of four 1986 graduates found full-time employment by 1988, one out of five was unemployed.

Graduates Who Entered the Labour Force

The students completing these programs find jobs primarily as welders or as industrial, farming and construction machinery mechanics and repairers. They are concentrated in the transportation equipment, fabricated metal products, trade contracting, and machinery industries. When looking for work they generally compete with community college graduates in similar programs. Two years after graduation, 1986 graduates earned significantly more than the average for all trade graduates, regardless of occupation. Furthermore, the average earnings of 1982 graduates grew at a somewhat higher-than-average rate between 1984 and 1987. Many welding trade graduates change jobs between the third and fifth years of their careers, with most shifting between welding and industrial, farm and construction machinery positions, and related construction trades.

The Course in Retrospect

Students in these programs were fairly happy with their educational experience, as only a slightly lower-than-average share reported that they would make the same educational choices again. The proportion who found jobs matching their training was somewhat below the average for all trade/vocational students, reflecting the weakness in demand for these workers, while the proportion who believed themselves overqualified for their jobs was slightly above the average. More than 90% of all welding trade graduates reported that they were satisfied with their jobs, although this was still slightly below the average for all trade school graduates. Overall working conditions for graduates in this field improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Other Architectural and Construction Technologies

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	523	594	546	529	521
% Women Graduates	9.4	6.6	7.3	7.8	9.2
% of Total Graduates at this Level	1.1	1.0	0.9	0.9	0.9

Activity of Graduates	Construction Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	25
Did Not Enter Labour Force	2	3
Part-time Students Already In Labour Force	14	7
Entered Labour Force	80	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	4	10
Average for all Fields at this Level	75	12	13

Working Full-time

Mgmt./Admin. (22%)
- Financial Officers (9%)
- Government Inspectors & Regulatory Officers (3%)
- Production Managers (2%)
- Purchasing Managers (2%)

Construction Trades (19%)
- Carpenters (10%)
- Plumbers (3%)
- Foreperson, Construction Trades (2%)
- Construction Electricians (2%)
- Power Line Workers (2%)

Natural Sciences, Engineering and Mathematics (17%)
- Draughtspersons (9%)
- Architectural Technologists & Technicians (2%)
- Engineering Technologists and Technicians (2%)

Machining (14%)
- Welders (8%)
- Sheet Metal Workers (2%)

Product Fabricating (12%)
- Industrial, Farm and Construction Machinery Mechanics and Repairers (6%)
- Cabinet Makers (2%)

Other (16%)
- Sales (4%)
- Clerical (3%)

Other Architectural and Construction Technologies

Career Program
Community College (2 years)

People who enter this field specialize in a wide range of trades such as masonry, drywall, heating and insulation, plumbing, construction electrician work, metal working, interior finishing, wood working and carpentry, and welding. The entry requirements vary depending on the trade and the institution, but generally applicants must have some high school, with courses in English (French), mathematics and the sciences. Knowledge of draughting and electronics is desirable, and some colleges may require students to take an aptitude test and undergo an interview. Normally students can complete these programs within two years, sometimes as part of a CO-OP program combining work and study. Community colleges in all provinces offer instruction in these architectural and construction trades. Men dominate this field, with women accounting for only 7% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course declined marginally over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A dramatically less-than-average proportion of these graduates continue their education upon completing their programs and a larger proportion than average choose to look for a job immediately upon graduation. This is typical of graduates in engineering technology. The proportion of students receiving their education on a part-time basis was double the average, implying that a substantial proportion of these graduates were attempting to upgrade their skills or acquire new ones while holding down a job. Not only were a slightly greater proportion of these graduates (90%) successful in finding a job, but most found full-time employment.

Graduates Who Entered the Labour Force

Most of these graduates find employment as carpenters or draughtspersons in the building development and general contracting industry, while smaller numbers work as welders or heavy equipment mechanics. Graduates from this course generally face job competition from trade/vocational graduates in construction technologies or from community college graduates in architectural/design draughting.

Two years after graduation, 1986 graduates were earning about 20% more than other graduates at this level, regardless of occupation. The proportion of these graduates who are not working declines slightly over time, solely the result of increases in full-time employment. Between the third and fifth years after graduation, salaries for these graduates increased at a slightly faster rate than the average for other community college graduates. During this time, a dramatically larger-than-average proportion (60%) change jobs, usually leaving positions as draughtspersons to become construction managers, mechanical or civil engineers, or engineering technologists/technicians.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a slightly higher-than-average level of job satisfaction. This probably results from a relatively strong match between field of study and current job, a low unemployment rate and a greater-than-average salary. Roughly two out of every three 1986 graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, roughly 20% of 1982 graduates from this course upgraded their qualifications. This accounts for the greater-than-average proportion changing jobs, and resulted in a smaller proportion feeling overqualified for their positions, more feeling their job matched their training and significantly more being content with past educational decisions.

Architecture

Undergraduate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	440	475	516	535	559
% Women Graduates	22.7	29.7	30.0	30.2	30.5
% of Total Graduates at this Level	0.4	0.4	0.4	0.4	0.4

Activity of Graduates	Architecture Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	9	14
Did Not Enter Labour Force	5	5
Part-time Students Already in Labour Force	15	20
Entered Labour Force	71	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	98	0	2
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences (84%)	Managerial and Administrative (5%)	Other (11%)
• Architects (84%)	• Construction Management (5%)	

Engineering and Engineering Technologies

Architecture

Undergraduate
University (4 years)

Individuals entering this field study a wide range of subjects including landscape design, environmental controls, design of cities, and architectural history and theory. Enrollment in architecture programs is limited. Admission requirements vary depending on the program and university, but applicants generally must possess a high school diploma (Diploma of Collegial Studies in Quebec) and at least two years of university with high grades in mathematics, physics and the other sciences. Architecture programs are offered at major universities in Nova Scotia, Quebec, Ontario and British Columbia and are normally completed in four years, often as part of a CO-OP program combining studies with work. Some universities in Quebec offer certificate or diploma programs in architecture that are somewhat shorter in duration. Women accounted for 30% of graduates in 1987, compared to 23% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of architecture graduates who complete their degrees through part-time study is somewhat below average. Moreover, the share who decide to continue their formal studies upon graduation is also somewhat lower than average, suggesting that a higher degree may not greatly enhance an architect's career and income prospects. Consequently, architecture graduates are more likely than others at this level to look for work immediately upon graduation. Not only are these graduates more successful in finding employment, but virtually all work full-time, leading to a much lower rate of unemployment than for all graduates at this level.

Graduates Who Entered the Labour Force

The vast majority of these graduates find employment as architects in the business service and trade contracting industries. When looking for work, they compete primarily among themselves, although for some positions they compete with community college and university graduates in other applied sciences. Two years after graduation, 1986 architecture graduates earned slightly less than the average for all graduates at this level. The average earnings of 1982 graduates in architecture, however, grew at a somewhat faster rate between 1984 and 1987 than the average for all other graduates. Only a few architecture graduates changed jobs between the third and fifth years of their careers, mostly moving out of surveying or various draughting occupations into architecture.

The Course in Retrospect

Graduates in architecture were fairly satisfied with their educational experience, as a greater-than-average proportion reported that they would make the same educational choices again. Moreover, the share who found jobs matching their undergraduate training was significantly above average, while the share who believed themselves to be overqualified for their jobs was significantly below average. Consequently, about 95% of all architecture graduates reported that they were satisfied with their jobs, a significantly higher satisfaction rate than the average. Furthermore, overall working conditions improved significantly in terms of job satisfaction and earnings between the third and fifth years of these graduates' careers.

Architecture

Master's
University (3 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	56	51	69	68	65
% Women Graduates	19.6	11.8	34.8	35.4	35.2
% of Total Graduates at this Level	0.4	0.3	0.4	0.4	0.4

Activity of Graduates	Architecture Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	6
Did Not Enter Labour Force	0	6
Part-time Students Already in Labour Force	6	33
Entered Labour Force	88	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	6	3
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (80%)	Managerial and Administrative (14%)	Other (6%)
• Architects (51%) • Draughting (18%) • Architectural Technologists and Technicians (11%)	• Managers and Administrators (14%)	

Architecture

Master's
University (3 years)

At the master's level, individuals in this field specialize in architectural design, landscape design, architectural acoustics, structural analysis and environmental controls. Admission requirements vary depending on the university, but in general, applicants must have an honours undergraduate degree in architecture or a closely related field of study (e.g., engineering). Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. The master's degree in architecture, which can generally be completed within three years, is offered by major universities in Nova Scotia, Quebec, Manitoba and Alberta. Women accounted for 35% of all 1987 graduates, up from 20% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained fairly stable over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period that it was over the 1981-to-1987 period.

Activity of Graduates

A dramatically smaller proportion of architecture students than other master's graduates pursued their degrees on a part-time basis, while an almost average proportion continued their education after receiving their degrees. Architecture graduates were not only more likely to be looking for a job upon graduation than other master's graduates, but they were also more likely to find a full-time job and less likely to be unemployed.

Graduates Who Entered the Labour Force

The majority of these graduates find work as architects in the business service industry, while a smaller number work as architectural technologists, technicians, managers and administrators. Regardless of occupation, 1986 architecture graduates earned about 30% less in 1988 than the average for all master's graduates. Generally, graduates from this field of study encounter competition for jobs from undergraduates with a degree, diploma or certificate in architecture as well as community college graduates with a diploma or certificate in a related field.

About 70% of 1982 graduates changed jobs between 1984 and 1987, mainly moving among the architecture, community planning and management occupations. The average salary of 1982 graduates increased about twice as fast over the 1984-to-1987 period as that of other master's graduates.

The Course in Retrospect

A much smaller proportion of architecture graduates (60%) than other master's graduates would choose the same educational program if they had to make the choice again. This may reflect their lower earnings, because a larger proportion than average found jobs that matched their education, a smaller proportion than average felt overqualified and all of them expressed satisfaction with their jobs. This situation did not change much over the 1984-to-1987 period, except that the number working in jobs related to their training increased.

Chemical Engineering

Undergraduate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	714	809	805	833	867
% Women Graduates	16.5	21.0	24.5	24.6	24.8
% of Total Graduates at this Level	0.7	0.7	0.7	0.7	0.7

Activity of Graduates	Chemical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	27	14
Did Not Enter Labour Force	7	5
Part-time Students Already in Labour Force	3	20
Entered Labour Force	63	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	92	1	7
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences (63%)
- Chemical Engineers (17%)
- Industrial Engineers (11%)
- Civil Engineers (8%)
- Petroleum Engineers (5%)
- Engineering Technologists and Technicians (4%)
- Systems Analysts, Computer Programmers and Related (4%)

Managerial and Administrative (12%)
- Production Managers (2%)
- Services Managers (2%)
- Sales and Advertising Managers (2%)

Sales Occupations (7%)
- Technical Sales Occupations and Related Advisors (5%)

Other (18%)

Engineering and Engineering Technologies

Chemical Engineering

Undergraduate
University (4 years)

Enrollment in chemical engineering programs is limited and highly competitive. Admission requirements vary depending on the program and university but in general, applicants must have completed high school with high marks, especially in mathematics, chemistry and physics. (Quebec students must possess a Diploma of Collegial Studies.) Generally, universities consider applicants for the chemical engineering program only after one or two years of university, at which time they require an interview. Universities in all provinces except Newfoundland, Prince Edward Island and Manitoba offer degrees in chemical engineering, which students normally complete within four years. Some universities in Ontario offer certificate or diploma programs in chemical engineering that are somewhat shorter in duration. Many universities allow students to complete their degree requirements through a CO-OP program combining work and study. Women accounted for 25% of all 1987 graduates, up from 16% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 10% more over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

The proportion of chemical engineering graduates who complete their degrees through part-time study was sharply lower than the average for all graduates. These graduates were, however, much more likely to continue their studies upon graduation, suggesting that a higher degree may enhance job and career prospects in this field. Upon graduation, chemical engineering graduates were just as likely to look for work as other graduates. Once in the labour market, they were not only more successful in finding work than all other graduates, but almost all found a full-time job.

Graduates Who Entered the Labour Force

The vast majority of chemical engineering graduates find employment as chemical, industrial, civil, or petroleum engineers, or as engineering technologists or technicians in the chemical and chemical products, paper and allied products, communications, utilities and business service industries. When looking for work, chemical engineering graduates mostly compete with other university graduates in engineering and sometimes with community college graduates in engineering technologies. Two years after graduation, regardless of occupation, 1986 graduates earned somewhat more than the average for all graduates at this level. The average earnings of 1982 graduates in chemical engineering technologies, however, grew at a slightly lower rate between 1984 and 1987 than the average for all other graduates. Many of these chemical engineering graduates changed jobs between the third and fifth years of their careers, mainly between different engineering fields and technologies or from engineering into management.

The Course in Retrospect

These graduates were fairly satisfied with their educational experience, as about 70% reported that they would make the same educational choices again. Moreover, the proportion who found jobs matching their undergraduate training was somewhat above average, while the proportion who believed themselves to be overqualified for their jobs was significantly below the average for all other graduates. Nevertheless, only about 85% reported that they were satisfied with their jobs, which was somewhat below the average for all graduates at this level. Overall working conditions for chemical engineering graduates improved in terms of employment and earnings between the third and fifth years of their careers.

Chemical Engineering

Master's
University (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	110	159	138	137	130
% Women Graduates	10.0	15.7	18.8	19.2	19.1
% of Total Graduates at this Level	0.8	1.0	0.8	0.8	0.8

Activity of Graduates	Chemical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	17	6
Did Not Enter Labour Force	16	6
Part-time Students Already in Labour Force	26	33
Entered Labour Force	41	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	95	5	0
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (74%)	Teaching (9%)	Managerial and Administrative (4%)	Other (13%)
• Chemical Engineers (15%) • Systems Analysts and Computer Programmers (13%) • Chemists (11%) • Civil Engineers (8%) • Industrial Engineers (4%) • Mechanical Engineers (4%) • Physical Sciences Technologists (4%)	• University and Related (9%)		

Engineering and Engineering Technologies

Chemical Engineering

Master's
University (2 years)

People in this field at the graduate level specialize in a variety of subfields including petrochemical engineering, polymer chemical engineering, and pulp and paper chemical engineering. Entry prerequisites vary depending on the institution, but in general, applicants must have an honours undergraduate degree in engineering. Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. Master's programs in chemical engineering are offered by major universities in all provinces except Newfoundland, Prince Edward Island and Manitoba and are normally completed within two years, sometimes as part of a CO-OP program combining work and study. Some universities offer graduate diploma or certificate programs which are shorter in duration but for which applicants still require an undergraduate degree. Women accounted for 19% of all 1987 graduates, up from 10% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period but has since fallen back to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% less over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

A smaller-than-average proportion of chemical engineering graduates pursued their degrees on a part-time basis and a larger proportion than average continued their education after receiving their degrees. Although a smaller proportion of chemical engineering students entered the labour force immediately upon graduating than the average for all master's graduates, they were more successful than average, with a higher proportion working full-time and no unemployment.

Graduates Who Entered the Labour Force

The majority of these graduates find work as chemical engineers in the business service industry, while a smaller number work as chemists, systems analysts and university teachers. Regardless of occupation, 1986 chemical engineering graduates earned about the same in 1988 as the average for all master's graduates. Generally, graduates from this field of study encounter job competition from others with an undergraduate degree, diploma or certificate in chemical or mechanical engineering.

About 65% of 1982 graduates changed jobs between 1984 and 1987, mostly moving between chemical engineering and various other engineering and management occupations. The average salary of 1982 graduates increased about half as fast over the 1984-1987 period as that of other master's graduates.

The Course in Retrospect

An approximately average proportion of chemical engineering graduates (80%) would choose the same educational program if they had to make the choice again. This coincides with almost-average proportions who found jobs related to their education and average levels of job satisfaction, as well as a below-average proportion who felt overqualified for their jobs. This situation remained stable over the 1984-to-1987 period, with the exception that a larger percentage found jobs related to their education in 1987 than in 1984.

Chemical Engineering

Doctorate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	34	29	48	53	53
% Women Graduates	0.0	10.3	10.4	10.6	10.6
% of Total Graduates at this Level	1.9	1.5	2.0	2.0	2.0

Activity of Graduates	Chemical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	3
Did Not Enter Labour Force	7	2
Part-time Students Already in Labour Force	8	20
Entered Labour Force	78	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	92	8	0
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching and Related Occupations (54%)

- University Teaching (54%)

Natural Sciences and Engineering (46%)

- Industrial Engineers (18%)
- Chemical Engineers (14%)
- Physical Sciences Technologists and Technicians (14%)

Engineering and Engineering Technologies

Chemical Engineering

Doctorate
University (4 years)

Individuals at the doctoral level in chemical engineering specialize in a variety of subfields such as petrochemical engineering, polymer chemical engineering, and pulp and paper chemical engineering. The entry prerequisites vary depending on the institution, but all applicants must have a master's degree in chemical engineering or the equivalent. Most universities require applicants to undergo an interview and provide letters of reference. Doctoral programs in chemical engineering, which students normally complete within four years, are offered by major universities in all provinces except Newfoundland, Prince Edward Island and Manitoba. Women accounted for only 10% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period but has since risen to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that about 140 more people will graduate from this course over the 1989-to-1995 period than did over the 1981-to-1987 period.

Activity of Graduates

The proportion of chemical engineering doctorates who obtain their degrees on a part-time basis is less than one-half the average for all doctorates, suggesting that the difficulty of this program requires the constant attention of the student. Upon completion, moreover, the share of these doctorates who continue with post-doctoral studies is twice the average, indicating that such studies enhance career prospects in some specialties. The proportion of chemical engineering doctorates who look for work immediately upon graduating is only slightly above the average, and over 90% find full-time jobs. All of the rest take part-time work, and thus the unemployment rate is virtually zero.

Graduates Who Entered the Labour Force

Doctorates in chemical engineering generally obtain employment as university teachers or as chemical or industrial engineers. They compete almost entirely among themselves for university teaching positions, but compete with other university graduates in civil and industrial engineering and chemistry at all levels for the non-university positions. Two years after graduation, 1986 graduates were earning somewhat more than the average of all doctorates. However, the average earnings of 1982 doctorates in chemical engineering increased at a somewhat slower rate than the average between 1984 and 1987. Only a few changed jobs between the third and fifth years of their careers, generally moving from university teaching into positions as practicing chemical engineers.

The Course in Retrospect

Chemical engineering doctorates make a relatively easy transition from the education system to the workforce, with virtually all reporting that they are satisfied with their current jobs. All found jobs matching their education and none believed that they were overqualified. The share who reported that they would make the same educational choices again, given the opportunity, was slightly less than the average for all other doctorates. Overall working conditions for chemical engineering doctorates improved somewhat in terms of earnings, remained fairly stable in terms of job satisfaction but deteriorated in terms of employment between the third and fifth years of their careers.

Chemical Engineering Technologies

Career Program
Community College (3 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	603	677	770	747	734
% Women Graduates	45.6	40.6	39.7	35.8	26.1
% of Total Graduates at this Level	1.2	1.1	1.3	1.3	1.3

Activity of Graduates	Chemical Engineering Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	25
Did Not Enter Labour Force	3	3
Part-time Students Already in Labour Force	8	7
Entered Labour Force	83	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	5	9
Average for all Fields at this Level	75	12	13

Working Full-time

Natural Sciences, Engineering and Mathematics (54%)

- Physical Sciences Technologists and Technicians (34%)
- Chemists (4%)
- Engineering Technologists and Technicians (3%)
- Life Sciences Technologists and Technicians (3%)

Medicine and Health (13%)

- Medical Laboratory Technologists and Technicians (12%)

Managerial and Administrative (6%)

- Sales and Advertising Managers (3%)
- Government Inspectors and Regulatory Officers (2%)

Other (27%)

- Clerical (5%)
- Sales (5%)
- Processing (4%)
- Product Fabricating (4%)

Chemical Engineering Technologies

Career Program
Community College (3 years)

Individuals entering this field undergo training in chemical engineering, biochemistry, and industrial (textiles/plastics) and photographic chemical technologies. The entry requirements vary depending on the specific trade and the institution but in general, students must complete high school with a solid basis in mathematics and chemistry as well as English (or French). Most colleges require applicants to pass diagnostic tests in mathematics, chemistry and English (or French). Students usually complete their college training within three years, sometimes as part of CO-OP program combining work and study. Instruction in these technologies is offered by community colleges in all provinces except Newfoundland, Prince Edward Island and Nova Scotia. The majority of graduates are men, with women accounting for 41% of the total in 1987, down from 46% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of these graduates receiving their diploma/certificate on a part-time basis approximated the average for all other community college students. A much smaller proportion continued their education, upon graduating, with most choosing to look for work instead. This is fairly typical of graduates in technological fields. Not only was a greater proportion (91%) successful in finding a job, but a very large proportion found full-time employment.

Graduates Who Entered the Labour Force

Most chemical engineering graduates find employment as physical sciences technologists and technicians in the chemical and chemical products industry, while smaller numbers work as engineering technologists and technicians, medical laboratory technologists and technicians, or as chemists. Graduates from this course generally face job competition from other community college graduates in engineering technologies and biological sciences technologies and from university graduates in biology, chemistry, geology, physics or basic medical sciences.

Two years after graduation, 1986 graduates were earning about 15% more than others at this level, regardless of occupation. As the time after graduation increases, the proportion of these graduates who are not working declines slightly, largely the result of increases in part-time employment. Between the third and fifth years after graduation, the average salary of chemical technology graduates increases at a slightly slower rate than the average for other community college graduates. During the same period, a larger proportion (45%) than average change jobs, usually among positions as technologists and technicians in the physical sciences, medicine, engineering and life sciences.

The Course in Retrospect

The transition from school to work appeared to be a slightly less positive experience for these graduates than others, as indicated by a smaller proportion expressing job satisfaction. This contrasts with a stronger match between field of study and current job, smaller numbers feeling overqualified and a greater-than-average salary. Only about three out of every five 1986 chemical technology graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates expressed greater job satisfaction and were less likely to feel overqualified (perhaps because so many changed jobs), but they felt less satisfied with past educational decisions.

Civil Engineering

Undergraduate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,562	1,338	1,230	1,274	1,328
% Women Graduates	5.7	8.4	9.2	9.2	9.3
% of Total Graduates at this Level	1.6	1.2	1.0	1.0	1.0

Activity of Graduates	Civil Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	17	14
Did Not Enter Labour Force	6	5
Part-time Students Already in Labour Force	8	20
Entered Labour Force	69	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	94	0	6
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences (62%)

- Civil Engineers (38%)
- Other Professional Engineers (8%)
- Systems Analysts, Computer Programmers and Related Occupations (4%)
- Mechanical Engineers (3%)
- Draughting Occupations (3%)

Managerial and Administrative (20%)

- Construction Managers (9%)
- Accountants, Auditors and Other Financial Officers (4%)

Construction Occupations (7%)

- Foremen (women), Other Construction Trades (4%)
- Inspecting, Testing, Grading and Sampling Occupations (2%)

Other (11%)

- University Teaching and Related Occupations (5%)
- Insurance Sales (3%)

Engineering and Engineering Technologies

Civil Engineering

Undergraduate
University (4 years)

Civil engineers are involved in the planning and construction of such projects as bridges, buildings, subways, harbours and water supply systems. The enrollment in civil engineering programs is generally limited, so the entry prerequisites are strict. Applicants must possess a high school diploma (Quebec students must have a Diploma of Collegial Studies) with high grades especially in mathematics and the sciences, and even then they are usually only formally considered for civil engineering after completing one or two years of university with high grades and undergoing an interview. The civil engineering program, which students typically can complete within four years, is offered by major universities in all provinces except Prince Edward Island. Some universities offer degrees through a CO-OP program combining work and study. Women accounted for only 9% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course declined slowly over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

The proportion of civil engineering graduates who complete their degrees through part-time study was slightly below average, suggesting that full-time study is important for success in this field. Furthermore, the share who decided to continue their formal education was slightly higher that the average for all graduates, indicating that an advanced degree may enhance career prospects in this field. Civil engineering graduates were more apt than others to look for work immediately upon graduation and were more successful in finding it, with almost all working full-time and an unemployment rate slightly lower than average.

Graduates Who Entered the Labour Force

Graduates in civil engineering find jobs in engineering and other scientific fields, building and general contracting, trade contracting and local government; they take positions as civil engineers, computer programmers, systems analysts, construction managers and other engineering-related managers. When looking for work, they compete with other university graduates in mechanical and other engineering fields for engineering positions and with university graduates in mathematics and computer sciences for computer- related positions. Two years after graduation, 1986 graduates earned somewhat more than the average for all other graduates at this level, regardless of occupation. The average earnings of 1982 graduates in civil engineering grew at virtually the average rate between 1984 and 1987. Many of these graduates changed jobs between the third and fifth years of their careers, mainly within engineering or engineering-related management.

The Course in Retrospect

Graduates in civil engineering appeared to be fairly satisfied with their educational experience, as the share who reported that they would make the same educational choices again was about average. The proportion who found jobs matching their undergraduate training was sharply above the average for all other graduates, while the proportion who believed themselves to be overqualified for their jobs was significantly below average. Not surprisingly, almost 95% of all graduates in civil engineering reported that they were satisfied with their jobs. Furthermore, overall working conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Civil Engineering

Master's
University (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	230	377	330	327	310
% Women Graduates	7.0	5.8	7.3	7.4	7.4
% of Total Graduates at this Level	1.6	2.3	1.9	1.9	1.9

Activity of Graduates	Civil Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	6
Did Not Enter Labour Force	4	6
Part-time Students Already in Labour Force	33	33
Entered Labour Force	59	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	94	3	3
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (69%)	Managerial and Administrative (16%)	Teaching (8%)	Other (7%)
• Civil Engineers (34%) • Systems Analysts and Computer Programmers (5%) • Electrical Engineers (4%) • Industrial Engineers (4%) • Physical Sciences Technologists and Technicians (2%)	• Organization and Methods Analysts (6%) • Construction Managers (2%)	• University and Related (6%) • Community College and Vocational School (2%)	

Engineering and Engineering Technologies

Civil Engineering

Master's
University (2 years)

At the master's level, people in this field specialize in a variety of areas, such as electrical energy conversion, geotechnical engineering, structural analysis and design, highway engineering, municipal engineering and construction project management. The admission prerequisites vary depending on the university, but in general, applicants must have an honours undergraduate degree in engineering. Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. Graduate programs in civil engineering are offered by major universities in all provinces except Prince Edward Island. Students can complete the master's program within two years, sometimes as part of a CO-OP program combining work and study. Some universities offer graduate diploma or certificate programs which are shorter in duration but for which students still require an undergraduate degree. Men dominate this field, with women accounting for only 7% of all 1987 graduates.

Graduate Trends and Projections

The number of graduates reflects the expected number of people who will be competing for similar kinds of jobs. The number of graduates rose from 230 in 1981 to 330 in 1987, reflecting a slight increase in the relative popularity of this program. Under current conditions, it is expected that the number of new graduates from this course will be marginally less over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

About average proportions of civil engineering graduates pursue their degrees on a part-time basis, enter the labour force or continue their education after receiving their degree. They are, however, highly successful in finding employment, with the overwhelming majority working full-time.

Graduates Who Entered the Labour Force

The majority of these graduates find work as civil engineers in the business service industry, while a smaller number work as university teachers, organization and methods analysts, and industrial and electrical engineers. Regardless of occupation, 1986 civil engineering graduates earned slightly less in 1988 than the average for all master's graduates. Job competition comes from undergraduates with a degree, diploma or certificate in civil engineering.

About 60% of 1982 graduates changed jobs between 1984 and 1987, generally moving out of civil engineering into positions in management or industrial engineering. The average salary growth of 1982 graduates was less than that of other master's graduates over the 1984-to-1987 period.

The Course in Retrospect

A somewhat smaller-than-average proportion of civil engineering graduates (70%) would select the same educational program if the choice had to be made again. This may reflect the fact that a lower-than-average proportion found jobs related to their education, a slightly higher proportion than average felt overqualified for their jobs and that earnings were somewhat lower than average. However, a slightly higher-than-average proportion expressed satisfaction with their jobs. This situation remained largely unchanged over the 1984-to-1987 period.

Civil Engineering

Doctorate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	34	32	45	50	50
% Women Graduates	0.0	3.1	2.2	2.3	2.3
% of Total Graduates at this Level	1.9	1.7	1.9	1.9	1.9

Activity of Graduates	Civil Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	3
Did Not Enter Labour Force	5	2
Part-time Students Already in Labour Force	13	20
Entered Labour Force	77	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	93	4	3
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching and Related Occupations (51%)

- University Teaching (37%)
- University Teaching and Related Occupations (14%)

Natural Sciences and Engineering (43%)

- Civil Engineers (24%)
- Engineering Technologists and Technicians (6%)

Other (6%)

- Transport (6%)

Engineering and Engineering Technologies

Civil Engineering

Doctorate
University (4 years)

At the doctoral level, people in civil engineering specialize in a variety of fields, such as electrical energy conversion, geotechnical engineering, structural analysis and design, highway engineering, municipal engineering and construction project management. The admission prerequisites vary depending on the university but all applicants must have a master's degree in civil engineering or the equivalent. Most universities require applicants to undergo an interview and provide letters of reference. Doctoral programs in civil engineering are offered by major universities in all provinces except Prince Edward Island and are normally completed within four years, sometimes as part of a CO-OP program. Men dominate this field, with women accounting for only 2% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be significantly more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of civil engineering doctorates who obtained their degrees on a part-time basis and who were already in the labour force was slightly more than 50% higher than the average. This suggests that the difficulty of the civil engineering program requires the full attention of students to their studies. Upon graduation the share of these doctorates who continued with post-doctoral studies was only slightly above the average, and the proportion who immediately looked for work was only slightly above the average. These graduates were very successful in obtaining related employment, with more than 90% finding full-time jobs, somewhat above the average, and with most of the rest obtaining part-time work. Only a few were unable to find work, and the 3% rate of unemployment was slightly below the average.

Graduates Who Entered the Labour Force

Doctorates in civil engineering generally obtain employment as university teachers or as engineers in the federal government, the engineering service industries, the transportation sector and various utility industries. They usually compete only among themselves for university teaching positions, but compete with other university graduates at all levels in electrical and other engineering programs for the non-university positions. The average earnings of 1986 doctorates in civil engineering, two years after graduation, were somewhat higher than the average of all doctorates. The average earnings of 1982 doctorates, however, increased at a somewhat slower rate than the average between 1984 and 1987. Virtually none changed occupations between the third and fifth years of their career.

The Course in Retrospect

These doctorates made a relatively easy transition from the education system into the workforce, although a slightly lower-than-average proportion reported that they were satisfied with their current jobs. All found jobs matching their education, but a somewhat higher-than-average share believed that they were overqualified for their jobs. The share of these graduates who reported that they would make the same educational choices again, given the opportunity, was slightly above the average for all other doctorates. Overall working conditions improved somewhat in terms of earnings and job satisfaction but deteriorated in terms of employment between the third and fifth years of their careers.

Civil Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(5 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	136	138	134	122
% of Total Graduates at this Level	0.3	0.3	0.3	0.3

Activity of Graduates	Civil Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	7
Did Not Enter Labour Force	7	4
Part-time Students Already in Labour Force	9	4
Entered Labour Force	79	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	74	5	21
Average for all Fields at this Level	74	9	17

Working Full-time

Construction Trades (51%)
- Pipefitting, Plumbing and Related (32%)
- Excavating, Grading and Related (9%)
- Construction - Labouring (9%)

Product Fabricating, Assembling and Repairing (12%)
- Industrial, Farm and Construction Machinery Mechanics and Repairers (5%)
- Electrical and Related Equipment Installing and Repairing (2%)

Natural Sciences, Engineering and Mathematics (8%)
- Engineering Technologists and Technicians (4%)

Other (29%)

Engineering and Engineering Technologies

Civil Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(5 months)

This category provides training in road construction, piping technologies and bridge construction. The entry prerequisites vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most entrants have completed their secondary education before enrollment. Civil technology programs are offered by institutions in all provinces except Newfoundland, Prince Edward Island, Nova Scotia, Saskatchewan and British Columbia, and normally take about five months to finish.

Graduate Trends and Projections

The number of graduates reflects the future number of persons who will be competing for similar kinds of jobs. The number of graduates from this field rose from 136 in 1984 to 138 by 1987, along with an increase in its relative popularity. Under current conditions with total trade/vocational enrollment dropping, about 20% fewer students per year should complete this course than in the past.

Activity of Graduates

A larger proportion than average of these graduates pursued their studies on a part-time basis, and a slightly smaller-than-average proportion entered the labour force upon completion of their program. Although these graduates were as successful as others in finding full-time jobs, their unemployment rate was somewhat higher-than-average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as pipefitters or plumbers in the construction trades industry, while smaller numbers take jobs as engineering technologists and technicians, industrial, farm and construction machinery mechanics and repairers, excavators, graders and as construction labourers. Generally, to become fully qualified as a plumber/pipefitter, an individual must undergo several years of apprenticeship training before receiving approval from the relevant provincial regulators. Two years after graduating, 1986 graduates earned about 25% more than the average for other graduates at this level, regardless of occupation. In general, graduates from this field face job competition from trade/vocational and community college graduates with a diploma or certificate in the construction technologies. About 50% of 1982 graduates changed jobs between 1984 and 1987, moving within the construction trade or into service and sales occupations. The average salary of these graduates rose almost as fast as the average for other graduates at this level over the 1984-to-1987 period.

The Course in Retrospect

About an average proportion of civil technologies graduates (65%) would select the same educational program if the choice had to be made again. A somewhat larger-than-average proportion found jobs matching their education and an average proportion were satisfied with their jobs, although the numbers who felt overqualified for their work was almost average. This situation changed little over the 1984-to-1987 period, with the exceptions that a much larger percentage were employed full-time and a smaller percentage felt overqualified for their work in 1987 than in 1984.

Civil Technologies

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,025	1,007	681	660	649
% Women Graduates	6.0	7.8	9.3	11.1	19.5
% of Total Graduates at this Level	2.1	1.7	1.2	1.2	1.2

Activity of Graduates	Civil Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	15	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	3	7
Entered Labour Force	78	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	87	0	13
Average for all Fields at this Level	75	12	13

Working Full-time

Natural Sciences, Engineering and Mathematics (62%)
- Engineering Technologists and Technicians (19%)
- Draughtspersons (14%)
- Civil Engineers (11%)
- Surveyors (8%)

Management and Administration (12%)
- Inspectors (4%)
- Construction Managers (3%)

Construction Trades (12%)
- Supervisors: Other Construction Trades (4%)
- Inspecting, Testing, Grading: Other Construction Trades (2%)
- Hydro Electric Transmission (2%)

Other (14%)
- Clerical (5%)
- Sales (3%)
- Processing (3%)

Engineering and Engineering Technologies

Civil Technologies

Career Program
Community College (2 years)

Individuals entering this program study civil, structural and municipal engineering. Admission requirements vary depending on the discipline and institution, but generally, students must have completed some high school, including senior level mathematics and physics as well as English (French). Draughting courses are an asset. Most colleges require applicants to take a diagnostic mathematics test and undergo an interview. Community colleges in all provinces except Prince Edward Island offer training in civil technologies. Normally students can complete the requirements for a technician's certificate in about two years and for a technologist's diploma in about three years. Women accounted for only 9% of graduates in 1987, up from 6% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 30% less over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

Upon graduation, a comparatively small proportion of these graduates continued their education and a larger-than-average proportion chose to look for a job. This is fairly typical of graduates in engineering. The proportion of students receiving their diploma/certificate on a part-time basis was quite small, implying that full-time classroom participation was essential. Although a much larger-than-average proportion of these graduates were successful in finding full-time employment, the unemployment rate for these graduates two years after graduation was one of the highest of all engineering technology disciplines, since none were employed part-time. As time after graduation increased, however, the proportion not working declined significantly.

Graduates Who Entered the Labour Force

Most civil technology graduates find employment as engineering technologists and technicians in the business services industry, while a smaller number work as draughtspersons and surveyors. Graduates from this course generally face job competition from other community college and trade/vocational graduates in computer science and other engineering technologies, and from university graduates in engineering.

Two years after graduation, 1986 graduates were earning about 10% more than other graduates at this level, regardless of occupation. Furthermore, between the third and fifth years after graduation, the average salary of civil technology graduates increased at a faster rate than the average for other community college graduates. During this period a greater-than-average proportion (60%) changed jobs, usually moving among such occupations as engineering or physical science technologists and technicians, surveyors and draughtspersons, or moving from the latter into construction management or supervisory occupations.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for 1986 graduates, as indicated by a comparatively large proportion expressing satisfaction with their current job. This probably results from a relatively strong match between field of study and current job, small numbers feeling overqualified and greater-than-average salaries. Nonetheless, a slightly smaller-than-average proportion of these graduates would make the same educational decisions if the choice had to be made again. Between the third and fifth years of their careers these graduates tended to become less enthusiastic about their job, with a larger proportion feeling overqualified and fewer being content with past educational decisions, although a larger proportion felt that their job matched their training.

Electrical Engineering

Undergraduate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,547	1,923	2,394	2,476	2,579
% Women Graduates	4.0	4.6	6.8	6.8	6.9
% of Total Graduates at this Level	1.6	1.8	2.0	2.0	2.0

Activity of Graduates	Electrical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	17	14
Did Not Enter Labour Force	5	5
Part-time Students Already in Labour Force	3	20
Entered Labour Force	75	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	88	5	7
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences, Engineering and Mathematics (77%)

- Electrical Engineers (37%)
- Systems Analysts, Computer Programmers and Related (16%)
- Engineering Technologists and Technicians (7%)
- Industrial Engineers (5%)
- Mechanical Engineers (3%)
- Other Professional Engineers (3%)

Managerial and Administrative (5%)

- Production Managers (2%)

Construction (4%)

- Wire Communications and Related Equipment Installing and Repairing (3%)

Other (14%)

- Product Fabricating, Assembling & Repairing (4%)
- Crafts & Equipment Operating (2%)
- Sales (2%)
- Clerical and Related (2%)

Engineering and Engineering Technologies

Electrical Engineering

Undergraduate
University (4 years)

Electrical engineers research, design and develop a variety of electrical products and systems including communications products and systems, power systems, and computers. They also design and fabricate electrical and electronic circuits. Enrollment in electrical engineering programs is limited, so entry requirements are high. Applicants must possess a high school diploma (or a Diploma of Collegial Studies in Quebec) with high grades, especially in mathematics and the sciences. Electrical engineering programs, which students normally complete within four years, are offered at major universities throughout Canada except in Prince Edward Island and can sometimes be completed through CO-OP programs combining work and academic study. Some universities in Quebec and Ontario offer certificate or diploma programs in civil engineering that may be shorter in duration. Men dominate this field, with women accounting for only 7% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 30% more over the 1989-to-1995 period was it was between 1981 and 1987.

Activity of Graduates

The proportion of graduates in electrical engineering who completed their degrees through part-time study was sharply below the average for all other graduates at this level, suggesting that this program may require full-time participation. The share of graduates who continued their formal education upon graduation was slightly higher than the average. These graduates were much more apt than others to look for work immediately upon graduation and were more successful in finding it. A significantly higher-than-average proportion of these graduates found full-time jobs, while a lower-than-average proportion take part-time work; the rate of unemployment in this field was somewhat lower than the average.

Graduates Who Entered the Labour Force

Graduates in electrical engineering find employment as electrical, industrial and other engineers, computer programmers and systems analysts in the architectural and engineering services, communication, and electrical and electronic product sectors. When looking for work, they compete with other engineering graduates for the engineering positions and with mathematics and computer science graduates for the computer programming and related positions. Two years after graduation, 1986 graduates earned somewhat more than the average for all other graduates at this level, regardless of occupation. The average earnings of 1982 graduates in electrical engineering, however, grew at a somewhat slower than average rate between 1984 and 1987. Many of these electrical engineering graduates changed jobs between the third and fifth years of their careers, mostly within engineering or engineering-related management occupations.

The Course in Retrospect

These graduates appeared to be fairly satisfied with their educational experience, as a significantly higher-than-average proportion reported that they would make the same educational choices again. Moreover, the share who found jobs matching their undergraduate training was also significantly above average, while the proportion who believed themselves to be overqualified for their jobs was sharply below average. Consequently, almost 95% reported that they were satisfied with their jobs, significantly above the average for all graduates at this level. Furthermore, overall working conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Electrical Engineering

Master's
University (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	216	320	374	371	352
% Women Graduates	5.1	4.4	7.0	7.1	7.2
% of Total Graduates at this Level	1.5	2.0	2.1	2.1	2.1

Activity of Graduates	Electrical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	6
Did Not Enter Labour Force	10	6
Part-time Students Already in Labour Force	27	33
Entered Labour Force	52	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	95	3	2
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (84%)
- Electrical Engineers (41%)
- Systems Analysts and Computer Programmers (30%)
- Industrial Engineers (2%)
- Physicists (2%)

Managerial and Administrative (8%)
- Management Occupations, Transport and Communications Operations (4%)
- Management Occupations, Natural Sciences and Engineering (2%)

Teaching (6%)
- University Teachers (4%)
- University and Related (2%)

Other (2%)

Engineering and Engineering Technologies

Electrical Engineering

Master's
University (2 years)

At the master's level, individuals in this field specialize in such fields as digital and analogue electronic systems, microwave circuits, integrated circuit design and fabrication, control systems, power systems and data communications systems. The entry requirements vary depending on the university, but in general, applicants must have an honours undergraduate degree in engineering or a closely related field of study. Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. Major universities in all provinces except Prince Edward Island offer graduate programs in this field. Students typically complete the graduate program within two years, sometimes as part of a CO-OP program combining work and study. Some universities offer graduate diploma or certificate programs which are shorter in duration but for which students still require an undergraduate degree. Men dominate this field, with women representing only 7% of all 1987 graduates.

Graduate Trends and Projections

The number of graduates reflects the expected number of people who will be competing for similar kinds of jobs. The number of graduates rose from 216 in 1981 to 374 in 1987, mirroring an increase in the relative popularity of this program. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A smaller proportion of electrical engineering graduates than the average for all master's graduates pursued their degrees on a part-time basis, and a larger-than-average proportion immediately continued their education after receiving their degree. Although just as likely as others at this level to be looking for a job, these graduates were more successful, as indicated by minimal rates of unemployment and part-time work.

Graduates Who Entered the Labour Force

The majority of 1986 graduates found work as electrical engineers in the telecommunications and consulting industries, while a smaller number work teaching systems analysis at university, and as managers in the transportation and communication sectors. Regardless of occupation, 1986 electrical engineering graduates earned about 15% more in 1988 than the average for all master's graduates. Job competition comes from undergraduates with a degree, diploma or certificate in electrical engineering or a related field, or in electrical/electronic technologies.

About 70% of 1982 graduates changed jobs between 1984 and 1987, mainly moving out of electrical engineering positions into systems analysis or natural sciences and engineering management. The average salary of 1982 graduates kept pace over the 1984-to-1987 period with that of other master's graduates.

The Course in Retrospect

A larger-than-average proportion of electrical engineering graduates (90%) would choose the same educational program if the choice had to be made again. This primarily reflects higher-than-average earnings, in spite of the fact that a higher-than-average proportion felt overqualified for their jobs. This situation did not change much between 1984 and 1987.

Electrical Engineering

Doctorate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	52	51	79	88	88
% Women Graduates	11.5	2.0	3.8	3.9	3.9
% of Total Graduates at this Level	2.9	2.7	3.3	3.3	3.3

Activity of Graduates	Electrical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	3
Did Not Enter Labour Force	3	2
Part-time Students Already in Labour Force	36	20
Entered Labour Force	61	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	4	10
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching and Related (58%)
- University Teaching (45%)
- Community College and Vocational School Teachers (7%)
- University Teaching and Related (6%)

Natural Sciences and Engineering (33%)
- Electrical Engineers (13%)
- Mathematicians and Statisticians (7%)
- Systems Analysts and Computer Programmers (7%)

Clerical and Related (9%)
- Electronic Data Processing Operators (9%)

Engineering and Engineering Technologies

Electrical Engineering

Doctorate
University (4 years)

At the doctoral level, individuals in this field specialize in such areas as digital and analogue electronic systems, microwave circuits, integrated circuit design and fabrication, operating systems and data communications systems. The entry requirements vary depending on the university, but all applicants must have a master's degree in electrical engineering or the equivalent. Most universities require applicants to undergo an interview and provide letters of reference. Major universities in all provinces except Newfoundland and Prince Edward Island offer doctoral programs in this field, which students typically complete within four years. Women represented only 4% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course declined slightly over the 1981-to-1984 period but has since risen to exceed its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 40% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of electrical engineering doctorates who obtained their degrees on a part-time basis and who were already in the labour force was almost twice the average for all doctorates in all fields; this may be a reflection of the good job opportunities for master's degree students in this field. Furthermore, virtually none of these doctorates continued with post-doctoral studies, suggesting that education beyond this level does not enhance career prospects. With so many already working, the proportion of electrical engineering doctorates who immediately looked for work upon completion of their studies was significantly below the average. Their success in obtaining related employment was somewhat lower than average, with 10% unable to find a job, twice the average for all doctorates.

Graduates Who Entered the Labour Force

Doctorates in electrical engineering generally obtain employment as professors or in related occupations in universities, or as electrical or other professional engineers, mathematicians and statisticians. They face virtually no direct competition from doctorates in other fields for university teaching positions, but must compete with other university graduates at all levels in engineering, computer science and chemistry for the non-university positions. The average earnings of 1986 doctorates in electrical engineering, two years after graduation, were significantly higher than the average earnings of all other doctorates. The average earnings of 1982 graduates, however, increased at a somewhat slower rate between 1984 and 1987 than the average. Only a few changed jobs between the third and fifth years of their careers, generally moving from non-teaching university positions into computer programming.

The Course in Retrospect

The electrical engineering doctorates who found employment made a relatively easy transition from the education system into the workforce, with virtually all reporting that they were satisfied with their current jobs. This reflects the fact that nine out of ten electrical engineering doctorates found jobs matching their education. The proportion who believed that they were overqualified for their jobs was somewhat higher than average, however, and although these doctorates appeared to be fairly satisfied with their educational experience, the share who reported that they would make the same educational choices again, given the opportunity, was slightly less than the average. Overall working conditions for electrical engineering doctorates improved significantly in terms of earnings but remained fairly stable in terms of job satisfaction and employment between the third and fifth years of their careers.

Electrical/Electronic Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	2,494	2,284	2,222	2,017
% of Total Graduates at this Level	4.9	4.6	4.6	4.6

Activity of Graduates	Electrical/Electronic Engineering Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	10	7
Did Not Enter Labour Force	1	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	87	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	80	5	15
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating Occupations (38%)
- Electrical Equip. Installers, Repairers (14%)
- Electronic Equip. Installers, Repairers (5%)
- Business and Commercial Machine Mechanics and Repairers (4%)
- Radio and Television Repairers (3%)
- Industrial, Farm and Construction Machinery Mechanics and Repairers (3%)

Construction Trades (25%)
- Construction Electricians and Repairers (13%)
- Wire Communications and Related Equipment Installing and Repairing (4%)
- Electrical Power Line Workers and Related (2%)

Natural Sciences and Engineering (8%)
- Draughting Occupations (5%)
- Systems Analysts and Computer Programmers (2%)

Other (29%)
- Sales (5%)
- Clerical and Related (4%)
- Service (4%)
- Managerial (4%)
- Processing (3%)

Engineering and Engineering Technologies

Electrical/Electronic Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(11 months)

Individuals entering this field obtain training in electrical technology (air conditioning/heating, refrigeration, electrical inspection, hydro, industrial, electrical and commercial electrician), electronic technology (electrodynamics, electronic switching, electronic transistors, integrated circuits) and avionics, electric motors, marine electronics and microwave telecommunications. The entry requirements depend on the type of program (pre-employment or skill upgrading) and the institution, but most students have completed their secondary education before enrollment. Institutions in all provinces except Prince Edward Island offer these programs, which typically take about twelve months to complete.

Graduate Trends and Projections

The number of graduates reflects the future number of persons who will be competing for similar kinds of jobs. Mirroring a decline in the relative popularity of this course, the number of graduates fell from 3,386 in 1984 to 2,997 in 1987. Under current conditions, about 10% fewer students per year should complete this course than in the past.

Activity of Graduates

Smaller-than-average proportions of these graduates pursue their program on a part-time basis. A larger-than-average proportion immediately continue their education after graduating, implying that further education enhances job prospects in this field. About an average proportion entered the labour force, and a larger-than-average proportion were working full-time two years after graduation. A much smaller-than-average proportion were working part-time while an average proportion were unemployed.

Graduates Who Entered the Labour Force

The majority of these graduates find work as electrical equipment installers and repairers in the trade contracting industry, while smaller numbers work as electrical and related equipment fabricators and assemblers, electronic equipment installers and repairers, radio and television repairers, and industrial, farm and construction machinery mechanics and repairers. Two years after finishing their studies, 1986 graduates earned over 15% more than the average for all graduates at this level. Graduates from this course generally face job competition from trade/vocational and community college graduates with training in this field. About 50% of these 1982 graduates changed jobs over the 1984-to-1987 period, although most were doing the same or similar type of work in their new job. The average salary for 1982 graduates rose faster over the 1984-to-1987 period than the average for all other graduates at this level.

The Course in Retrospect

An average proportion of these graduates (64%) would choose the same program if the choice had to be made again. This coincides with an average level of job satisfaction and with an average proportion who found jobs related to their training; a smaller-than-average proportion felt overqualified for their work. This situation changed little over the 1984-to-1987 period, with the exceptions that larger percentages were employed full-time and job satisfaction was higher in 1987 than in 1984.

Electrical/Electronic Engineering Technologies

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,779	3,819	3,963	3,842	3,779
% Women Graduates	2.0	3.0	5.2	5.8	6.1
% of Total Graduates at this Level	5.7	6.5	6.8	6.8	6.8

Activity of Graduates	Electrical/Electronic Engineering Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	12	25
Did Not Enter Labour Force	2	3
Part-time Students Already in Labour Force	6	7
Entered Labour Force	80	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	2	7
Average for all Fields at this Level	75	12	13

Working Full-time

Product Fabricating, Assembling & Repairing (35%)
- Electronic & Rel. Equip. Installing & Repairing (14%)
- Electronic & Related Equip. Fabricating & Assembling (3%)
- Electrical & Rel. Equip. Installing & Repairing (3%)
- Inspecting & Testing Electrical, Electronic & Related Equipment (3%)
- Business & Commercial Machine Mechanics & Repairers (3%)

Natural Sciences, Engineering and Mathematics (21%)
- Engineering Technologists/ Technicians (8%)
- Electrical Engineers (5%)
- Draughting (3%)
- Systems Analysts (3%)

Construction Trades (13%)
- Wire Communications & Rel. Equip. Installing & Repairing (3%)
- Hydro Electric Transmission (2%)
- Construction Electricians and Repairers (2%)

Other (31%)
- Sales (7%)
- Mgmt./ Admin. (6%)
- Clerical (5%)
- Services (3%)

Electrical/Electronic Engineering Technologies

Career Program
Community College (2 years)

People entering this field undertake training in a wide range of areas including industrial electrical work and air conditioning and heating, refrigeration, hydro, electrical construction, electronic switching, circuitry, avionics, marine and telecommunications technologies. Entry requirements vary depending on the technology to be studied and the institution, but generally, students must have completed some high school with senior level courses in mathematics, physics, chemistry, English (French) and preferably draughting. Most colleges require applicants to pass a diagnostic mathematics test and to be interviewed. Related work experience is a great advantage in applications. Normally students can complete the requirements for a technician's certificate in about two years and for a technologist's diploma in about three years, sometimes through a CO-OP program combining work and study. Community colleges in all provinces offer instruction in these technologies. Men dominate this profession, with women accounting for only 5% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

Only half as many of these graduates as other community college graduates continued their education upon graduating, a much greater proportion than average choosing to look for a job instead. This is fairly typical for engineering graduates. The proportion of students receiving their diploma/certificate on a part-time basis was about average. Not only were a greater proportion of these graduates (93%) successful in finding a job, but almost all were employed full-time. As time after graduation increases, the proportion of these graduates who are not working declined even further, the result of a large increase in full-time employment.

Graduates Who Entered the Labour Force

Most of these graduates find employment as electronic/electrical and related equipment installers and repairers, and as electronic and related equipment fabricators and assemblers in the electrical and electronic products industries, while a smaller number work as engineering technologists and technicians. They generally face job competition from other community college graduates in computer science and instrumentation, from trade/vocational graduates in computer science and manufacturing technologies and from university graduates in computer science and electrical engineering.

Two years after graduation, 1986 graduates were earning about 10% more than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of these graduates increased at an average rate. During this period, a larger-than-average proportion (48%) changed jobs, usually moving among positions as engineering technologists and technicians, electrical/electronic and related equipment installers and repairers, systems analysts, and construction electricians and repairers.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by an average proportion expressing satisfaction with their current jobs. This probably results from a relatively strong match between field of study and current job, lower numbers feeling overqualified and a higher-than-average salary. About 70% of 1986 graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates expressed greater job satisfaction, with more feeling their job matched their training and more being content with past educational decisions, although a larger proportion felt that they were overqualified for their current job.

Industrial Engineering Technologies

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	672	791	829	804	791
% Women Graduates	17.9	4.0	6.4	5.9	4.5
% of Total Graduates at this Level	1.4	1.3	1.4	1.4	1.4

Activity of Graduates	Industrial Engineering Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	12	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	7	7
Entered Labour Force	80	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	2	7
Average for all Fields at this Level	75	12	13

Working Full-time				
Machining and Related (26%)	**Product Fabricating, Assembling and Repairing (24%)**	**Natural Sciences, Engineering and Mathematics (19%)**	**Mgmt./Admin. (9%)**	**Other (22%)**
• Machinists and Machine Tool Set-Up (16%) • Tool and Die Makers (5%) • Pattern and Mould Makers (3%)	• Inspecting, Testing and Grading - Fabricating and Assembling (Metal Products) (6%) • Industrial, Farm and Construction Machinery Mechanics and Repairers (5%)	• Draughting (5%) • Industrial Engineers (3%) • Mechanical Engineers (3%)	• Production Managers (5%)	• Construction Trades (6%)

Industrial Engineering Technologies

Career Program
Community College (2 years)

Individuals entering this field obtain training in a wide variety of trades including industrial design and operation, quality control, machinist work, material science and management, and various manufacturing process technologies (e.g., manufacturing of automobiles, electrical products, wood and paper products, aircraft, clothing and chemicals). Admission requirements vary depending on the technology to be studied and the institution, but in general, students must have completed some high school with senior level mathematics, physics, chemistry and English (French). Courses in computer programming, machine shop, mechanical draughting and welding, as well as related work experience, are considerable assets for applicants. Most colleges require applicants to pass a diagnostic mathematics test and to undergo an interview. Students usually complete the requirements for a technician's certificate in about two years and for a technologist's diploma in about three years, sometimes as apart of a CO-OP program combining work and study. Community colleges in all provinces except Newfoundland, Prince Edward Island, Nova Scotia and Manitoba offer instruction in the various manufacturing technologies. Men dominate this field, with women representing only 6% of graduates in 1987, down from 18% in 1981.

Graduate Trends and Projections

The relative popularity of this course has remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

A smaller proportion of these graduates than others at this level continued their education after graduating, with a much larger proportion than average choosing to look for a job instead. The proportion of students receiving their diploma/certificate on a part-time basis was average. Not only was a larger-than-average proportion (93%) successful in finding a job, but almost all were working full-time. Furthermore, the proportion of unemployed declines over time, largely a result of increased part-time work.

Graduates Who Entered the Labour Force

Most industrial engineering technology graduates find employment as machinists or in machine tool set-up in the transportation equipment industry, while a smaller number work as tool and die makers, metal products inspectors, heavy equipment mechanics and production managers. Graduates from this course generally face job competition from other community college graduates in mechanical technologies and from trade/vocational graduates in machinist courses.

Two years after graduation, 1986 graduates were earning about 20% more than other graduates at this level, regardless of occupation Between the third and fifth years after graduation, the average salary of industrial engineering technology graduates increased at a slightly faster rate than the average for other community college graduates. During this period, a larger-than-average proportion (55%) changed jobs, usually moving among positions in machining, tool and die or machine tool operating, management, technical sales and marketing.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a greater-than-average proportion expressing satisfaction with their job. This probably results from a relatively strong match between field of study and current job, only average numbers feeling overqualified, greater-than-average salaries and a lower-than-average unemployment rate. Almost seven out of ten 1986 industrial engineering technology graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of these graduates' careers, job satisfaction declined, as a larger proportion felt overqualified for their job and a smaller proportion felt content with their past educational decisions, although more felt that their job matched their training.

Industrial Engineering Technologies (Machinist)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	2,457	1,323	1,287	1,130
% of Total Graduates at this Level	4.8	2.7	2.7	2.7

Activity of Graduates	Industrial Engineering Technologies (Machinist) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	7
Did Not Enter Labour Force	1	4
Part-time Students Already in Labour Force	3	4
Entered Labour Force	90	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	81	2	17
Average for all Fields at this Level	74	9	17

Working Full-time

Machining and Related (55%)
- Machinists and Machine Tool Setting Up (33%)
- Tool and Die Making (11%)
- Machine Tool Operators (3%)
- Welding and Flame Cutting (3%)

Product Fabricating, Assembling and Repairing (19%)
- Industrial, Farm and Construction Machinery Mechanics and Repairers (5%)
- Other Metal Product Fabricators and Assemblers (4%)
- Motor Vehicle Mechanics and Repairers (2%)

Other (26%)
- Construction Trades (5%)
- Processing (4%)
- Transport Equipment Operators (3%)
- Crafts and Equipment Operating (3%)

Engineering and Engineering Technologies

Industrial Engineering Technologies (Machinist)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (11 months)

Individuals entering the machinist field must learn the basics of bearing manufacturing, engraving, gear cutting, machine shop and tool and die making. The entry requirements vary depending on the type of program (pre-employment and skill upgrading) and the institution, but most students have completed high school before enrolling. All provinces except Prince Edward Island offer programs in the machine trades, which can typically be completed in about one year.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. As a field of study, the machine trades have fallen in popularity among students in recent years as the total number of students completing these programs dropped from 2,457 in 1984 to 1,323 in 1987. Under current conditions, about 30% fewer students per year should complete this course than in the past.

Activity of Graduates

The proportion of machine trade graduates who complete their formal studies on a part-time basis is about the same as the average for all trade school students, as is the share who continue their education upon graduating. These graduates are more likely to look for employment immediately after completing their education and are just as successful as others in finding it. The proportion working full-time is significantly above the average, while the proportion working part-time is well below the average. The unemployment rate is about the same as for other trade graduates.

Graduates Who Entered the Labour Force

Graduates in these trades primarily find jobs as machinists and in machine tool setting-up occupations, and as industrial, farming and construction machinery mechanics in a variety of industries, especially the fabricated metal products, transportation equipment and machinery industries. When looking for work they compete mainly among themselves and with community college graduates in similar programs. Two years after graduation, 1986 graduates earned somewhat more than the average income of all trade graduates, regardless of occupation. Furthermore, the average earnings of 1982 graduates grew at a substantially higher rate between 1984 and 1987 than the average of all other trade school students. Many machine trade graduates change jobs between the third and fifth years of their careers, with most switching between related trades.

The Course in Retrospect

Machine trade graduates appear fairly happy with their educational experience, as only a slightly lower-than-average share of these graduates reported that they would make the same educational choices again. The share of these graduates who found jobs matching their training was slightly above the average for all trade school students, and the proportion who believed themselves to be overqualified for their jobs was somewhat below average. Ninety percent reported that they were satisfied with their jobs, slightly less than the average for all trade school graduates. Survey results show that overall working conditions for these graduates improved somewhat in terms of employment and job satisfaction and improved significantly in terms of earnings between the third and fifth years of their careers.

Industrial Engineering Technologies (Manufacturing)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (8 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	910	476	463	420
% of Total Graduates at this Level	1.8	1.0	1.0	1.0

Activity of Graduates	Industrial Engineering Technologies (Manufacturing) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	7
Did Not Enter Labour Force	5	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	87	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	74	0	26
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating, Assembling and Repairing (51%)

- Sewing Machine Operators for Textiles and Similar Materials (12%)
- Electronic Equipment Fabricators & Assemblers (8%)
- Industrial, Farm & Construction Machinery Mechanics and Repairers (7%)
- Shoemakers and Repairers (4%)
- Electronic Installing and Repairing (4%)

Machining and Related (16%)

- Sheet Metal Workers (8%)
- Welding and Flame Cutting (3%)
- Tool and Die Making (3%)

Other (33%)

- Services (7%)
- Construction Trades (3%)
- Processing Occupations (3%)
- Natural Sciences and Engineering (3%)

Engineering and Engineering Technologies

Industrial Engineering Technologies (Manufacturing)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(8 months)

This field of study covers a wide range of specialized trades in manufacturing related to electrical/electronic equipment, metal, wood and paper products, aircraft, clothing, rubber, glass, plastics and chemicals. The entry requirements vary depending on the program (pre-employment or skill upgrading) and the institution, but most students possess a high school diploma before enrolling in the program. All provinces except Prince Edward Island, Manitoba, and Alberta offer programs in various manufacturing technologies, which students typically complete within about eight months.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. As a field of study, the manufacturing trades have fallen in popularity in recent years, as the total number of students completing these programs dropped sharply from 910 in 1984 to 476 in 1987. Under current conditions, about 35% fewer students per year should complete this course than in the past.

Activity of Graduates

A small proportion of manufacturing trades graduates complete their formal studies on a part-time basis, while the numbers of those continuing their education after graduation is about average for all trade school graduates. Students completing these manufacturing trade programs were more likely to look for employment immediately upon finishing their education than other graduates. While about three out of four of these graduates find full-time employment, the same as the average for all trade school graduates, virtually none obtain part-time jobs, resulting in a much higher rate of unemployment.

Graduates Who Entered the Labour Force

Reflecting the broad array of courses offered in this field, trade graduates in the manufacturing technologies find an enormous variety of jobs, including positions as sewing machine operators, electrical equipment fabricators and assemblers, industrial, farming and construction machinery mechanics, sheet metal workers, tool and die makers, welders, boilermakers, platers, and structural metal workers across all manufacturing industries. When looking for work these graduates compete primarily among themselves and with community college graduates in similar programs. Two years after graduation, 1986 graduates earned somewhat more than the average income of all trade graduates, regardless of occupation. The average earnings of 1982 graduates, however, grew at a much slower rate between 1984 and 1987 than the average for all other trade school students. Many trade graduates in the manufacturing technologies change jobs between the third and fifth years of their careers, with most switching between related trades or into sales and clerical work.

The Course in Retrospect

Trade graduates in the manufacturing technologies appear fairly unhappy with their educational experience, as a somewhat lower-than-average share reported that they would make the same educational choices again. The share of these graduates who found jobs matching their training was also somewhat lower than the average for all trade school students, but the proportion who believed themselves to be overqualified for their jobs was about average. Nonetheless, 90% reported that they were satisfied with their jobs, slightly less than the average for all trade school graduates. Overall working conditions for these manufacturing trade graduates improve somewhat in terms of employment and job satisfaction and improve significantly in terms of earnings between the third and fifth years of their careers.

Mechanical Engineering

Undergraduate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,460	1,925	1,964	2,039	2,128
% Women Graduates	2.6	5.1	6.9	6.9	7.0
% of Total Graduates at this Level	1.5	1.8	1.6	1.6	1.7

Activity of Graduates	Mechanical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	14
Did Not Enter Labour Force	4	5
Part-time Students Already In Labour Force	5	20
Entered Labour Force	83	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	1	8
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences (73%)
- Mechanical Engineers (28%)
- Civil Engineers (11%)
- Engineering Technologists and Technicians (5%)
- Industrial Engineers (5%)
- Electrical Engineers (4%)
- Other Professional Engineers (4%)
- Systems Analysts, Computer Programmers & Related (4%)

Managerial and Administrative (14%)
- Production Managers (4%)
- Sales and Advertising Managers (3%)
- Natural Sciences and Engineering Managers (2%)

Product Fabricating, Assembling and Repairing (4%)
- Motor Vehicle Mechanics and Repairers (2%)

Other (9%)

Mechanical Engineering

Undergraduate
University (4 years)

Individuals entering mechanical engineering undergo training in the design and construction of manufacturing processes and energy conservation projects. Admission requirements vary depending on the university and the program, but in general, enrollments are limited and entry standards are high. Applicants must complete high school (Diploma of Collegial Studies in Quebec) with good grades, especially in mathematics, physics and chemistry. Universities in all provinces except Prince Edward Island offer undergraduate degrees in mechanical engineering, which students normally complete within four years. Some universities offer CO-OP programs combining work experience and formal study, while some institutions in Quebec and Ontario offer certificate and diploma programs that are shorter in duration. Men dominate this field, with women accounting for only 7% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1984 period but has since fallen back to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between the 1981 and 1987.

Activity of Graduates

The proportion of mechanical engineering graduates who completed their degrees through part-time study was sharply below average, suggesting that full-time study is required to complete this program. The share of graduates who decided to continue their formal education was also sharply below average, a measure of the immediate and strong demand for their services. Consequently, these graduates were much more likely than others to be looking for work immediately upon graduation, and they were also more successful in finding it. The proportion who found full-time work was much higher than average, with virtually no mechanical engineering graduates taking part-time jobs. As a result, their rate of unemployment was slightly lower than that for all graduates at this level.

Graduates Who Entered the Labour Force

The majority of mechanical engineering graduates find employment as mechanical engineers, civil engineers, agricultural engineers and as engineering technologists/technicians across most industries, but especially in the architectural, engineering, scientific services, machinery and transportation equipment sectors. When looking for work, they compete with other university graduates in engineering, especially electrical engineering, for the available positions. Two years after graduation, 1986 graduates earned somewhat more than the average for all graduates at this level, regardless of occupation. The average earnings of 1982 graduates grew at a somewhat faster rate than the average between 1984 and 1987. Many of these graduates changed jobs between the third and fifth years of their careers, mainly within engineering and engineering-related management.

The Course in Retrospect

Graduates in mechanical engineering appear fairly satisfied with their educational experience, as a larger-than-average share reported that they would make the same educational choices again. Moreover, virtually all found jobs matching their undergraduate training, and the proportion who believed themselves to be overqualified for their job was sharply lower than the average. Nonetheless, the proportion who reported that they were satisfied with their jobs was similar to the average. Overall working conditions for graduates in mechanical engineering improved significantly in terms of employment and earnings between the third and fifth years of their careers, but deteriorated somewhat in terms of job satisfaction.

Mechanical Engineering

Master's
University (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	116	185	200	198	188
% Women Graduates	3.4	1.6	7.5	7.6	7.6
% of Total Graduates at this Level	0.8	1.1	1.1	1.1	1.1

Activity of Graduates	Mechanical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	6
Did Not Enter Labour Force	9	6
Part-time Students Already in Labour Force	29	33
Entered Labour Force	51	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	87	7	6
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (70%)
- Mechanical Engineers (36%)
- Aerospace Engineers (6%)
- Electrical Engineers (5%)
- Systems Analysts and Computer Programmers (5%)

Teaching (13%)
- University and Related (10%)
- Instructors and Training Officers (3%)

Other (17%)

Mechanical Engineering

Master's
University (2 years)

At the master's level, individuals in this field specialize in such areas as manufacturing engineering, applied thermodynamics, mechanical systems design and feedback control systems. The admission requirements vary depending on the university, but in general, applicants must have an undergraduate degree in engineering. Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. The master's program in mechanical engineering is offered by major universities in all provinces except Prince Edward Island. Students can complete the program within two years sometimes as part of a CO-OP program combining work and study. Men dominate this field, with women accounting for 8% of all 1987 graduates.

Graduate Trends and Projections

The number of graduates reflects the expected number of people who will be competing for similar kinds of jobs. The number of graduates increased from 116 in 1981 to 200 in 1987, mirroring a rise in the relative popularity of this field. Under current conditions, it is expected that the number of new graduates from this course will be marginally less over the 1989-to-1995 period than it was over the 1981-to-1987 period. About 190 students will receive a master's degree in mechanical engineering in 1995.

Activity of Graduates

Relative to other master's graduates, a smaller proportion of mechanical engineering graduates pursue their degrees on a part-time basis and a larger proportion than average continue their education after receiving their degree. These graduates were just as likely to look for a job as other graduates at this level and were equally successful in finding employment.

Graduates Who Entered the Labour Force

The majority of these graduates find work as mechanical engineers and consultants in the business service industry, while a smaller number work as university teachers, aerospace engineers and systems analysts. Two years after graduating, 1986 mechanical engineering graduates earned almost the same as the average for others at the master's level, regardless of occupation.

Generally, graduates from this field encounter job competition from undergraduates with a degree, diploma or certificate in mechanical engineering or a related discipline. About 55% of 1982 graduates changed jobs between 1984 and 1987, mostly moving out of mechanical engineering into electrical and aerospace engineering. The average salary of 1982 graduates increased at almost twice the rate of that of other master's graduates between 1984 and 1987.

The Course in Retrospect

A somewhat smaller proportion of mechanical engineering graduates (70%) than other master's graduates would select the same educational program if the choice had to be made again. This may reflect the somewhat lower-than-average salary, as well as the slightly smaller proportions who found jobs related to their education or who felt satisfied with their jobs. An average proportion felt overqualified for their jobs. This situation changed little over the 1984-to-1987 period, with the exceptions that the level of job satisfaction and the number who found a job related to their education increased between the third and fifth years of their career.

Mechanical Engineering

Doctorate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	27	25	42	47	47
% Women Graduates	0.0	0.0	0.0	0.0	0.0
% of Total Graduates at this Level	1.5	1.3	1.8	1.8	1.8

Activity of Graduates	Mechanical Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	0	20
Entered Labour Force	93	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	87	13	0
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching and Related Occupations (45%)
- University Teaching (23%)
- University Teaching and Related Occupations (22%)

Natural Sciences and Engineering (44%)
- Mechanical Engineering (33%)
- Physical Sciences Technologists and Technicians (11%)

Managerial and Administrative (11%)

Engineering and Engineering Technologies

Mechanical Engineering

Doctorate
University (4 years)

Individuals at the doctoral level in this field specialize in such areas as manufacturing engineering, applied thermodynamics, mechanical systems design and feedback control systems. The admission requirements vary depending on the university, but all applicants must have a master's degree in mechanical engineering or the equivalent. Most universities require applicants to undergo an interview and provide letters of reference. Doctoral programs in mechanical engineering are offered by major universities in all provinces except Newfoundland, Prince Edward Island and Saskatchewan, and are normally completed within four years. Men obtained all the doctorates awarded in this field in 1987.

Graduate Trends and Projections

The relative popularity of this course declined slightly over the 1981-to-1984 period but has since risen to exceed its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that about 100 more people will graduate from this program over the 1989-to-1995 period than did between 1981 and 1987.

Activity of Graduates

Virtually no mechanical engineering doctorates obtained their degrees on a part-time basis, suggesting that this program demands most of the student's time. The share of these doctorates who continue with post-doctoral studies after graduating was twice the average of all other doctorates, indicating that such studies enhance career prospects in some specialties. More than 90% of these doctorates immediately look for work upon the completion of their studies, a much higher proportion than average. Almost nine out of ten doctorates find full-time jobs, just under the average for all doctorates, and all of the rest obtain part-time work.

Graduates Who Entered the Labour Force

Doctorates in mechanical engineering generally find employment as university teachers or in related university non-teaching positions, or as mechanical engineers and physical sciences technologists and technicians in the primary metals industries, the transportation equipment industry and the engineering service industries. They face virtually no direct competition from doctorates in other fields for university teaching positions but must compete with other university graduates at all levels (primarily those in chemical engineering, chemistry, physics and geology) for the non-university positions. The average earnings of 1986 doctorates, in mechanical engineering, two years after graduation, were somewhat lower than the average earnings of all doctorates. The average earnings of the 1982 doctorates, however, increased at a sharply faster pace between 1984 and 1987 than the average. Virtually none of these doctorates changed occupations between the third and fifth years of their careers.

The Course in Retrospect

Mechanical engineering doctorates made a relatively easy transition from the education system into the workforce, with nine out of ten reporting that they were satisfied with their current jobs. This was somewhat below the average for all other doctorates, perhaps reflecting the fact that a somewhat lower-than-average proportion of mechanical engineering doctorates found jobs matching their education. The proportion of these doctorates who believed that they were overqualified for their jobs, however, was only about one-third of the average for all other doctorates, and the share who reported that they would make the same educational choices again, given the opportunity, was slightly lower than average. Overall working conditions for mechanical engineering doctorates improved significantly in terms of earnings, but deteriorated in terms of job satisfaction, between the third and fifth years of their careers.

Mechanical Technologies

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,357	1,717	1,444	1,400	1,377
% Women Graduates	1.0	2.0	3.7	3.8	4.0
% of Total Graduates at this Level	2.8	2.9	2.5	2.5	2.5

Activity of Graduates	Mechanical Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	10	25
Did Not Enter Labour Force	3	3
Part-time Students Already in Labour Force	4	7
Entered Labour Force	83	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	90	2	8
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating and Assembly (36%)

- Heavy Equipment Mechanics and Repairers (11%)
- Aircraft Mechanics and Repairers (7%)
- Motor Vehicle Mechanics and Repairers (6%)
- Aircraft Fabricating and Assembly (3%)

Natural Sciences, Engineering and Mathematics (23%)

- Draughtspersons (9%)
- Engineering Technologists and Technicians (5%)
- Mechanical Engineers (3%)

Other (41%)

- Management and Administration (7%)
- Sales (5%)
- Farming and Horticulture (5%)
- Services (4%)
- Machining (4%)
- Construction Trades (4%)

Engineering and Engineering Technologies

Mechanical Technologies

Career Program
Community College (2 years)

People entering this field obtain training as mechanics for agricultural equipment, aircraft, automobiles, marine equipment and heavy or small equipment, and as auto body repairers. The admission requirements vary depending on the technology and the institution, but in general, students must have completed some high school with senior level courses in mathematics, physics and English (French). Most colleges require applicants to take diagnostic tests in mathematics, undergo an interview and demonstrate some mechanical aptitude. Although not strictly required, courses in chemistry, mechanical draughting, machine shop and welding are considerable assets for applicants. Students usually can complete these programs within two years, sometimes as part of a CO-OP program combining work and study. Community colleges in all provinces except Prince Edward Island offer instruction in these courses. Men dominate this field, with women making up only 4% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1984 period, but has since fallen to below its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A much smaller-than-average proportion of these graduates continued their education upon finishing the program, with a much larger proportion than average choosing to look for a job. This is fairly typical of engineering technology graduates. The proportion of students receiving their diploma/certificate on a part-time basis was slightly less than average, implying that these courses demand a lot of classroom time. A larger-than-average proportion of these graduates were successful in finding a job, with almost all employed full-time.

Graduates Who Entered the Labour Force

Most mechanical technology graduates find employment as heavy equipment mechanics, aircraft mechanics and motor vehicle mechanics in the transportation or transportation equipment industries, while smaller numbers work as draughtspersons, engineering technologists/technicians or mechanical engineers. Graduates from this course primarily face job competition from similar graduates from community colleges and trade/vocational schools.

Two years after graduation, these 1986 graduates were earning about 15% more than others at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of these graduates increases at a rate approximating the average for other community college graduates. During this time a slightly greater-than-average proportion (50%) change jobs, usually moving from motor vehicle mechanics to heavy equipment mechanics or from heavy equipment mechanics to draughtspersons or mechanical engineering. About 70% of 1982 graduates from this course who were motor vehicle mechanics in 1984 were still motor vehicle mechanics in 1987.

The Course in Retrospect

The transition from school to work appeared to be a relatively positive experience for these graduates, as indicated by an about average level of job satisfaction. This parallels a relatively strong match between field of study and current job, a less-than-average unemployment rate and a greater-than-average salary. Roughly two out of every three 1986 mechanical technology graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates tended to become more disillusioned with their job, with a larger proportion feeling overqualified, and fewer being content with past educational decisions, although more felt their job matched their educational background in 1987 than in 1984.

Auto Body Repairs

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(8 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	528	413	402	365
% of Total Graduates at this Level	1.0	0.8	0.8	0.8

Activity of Graduates	Auto Body Repairs Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	7
Did Not Enter Labour Force	0	4
Part-time Students Already in Labour Force	7	4
Entered Labour Force	90	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	74	6	20
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating, Assembling and Repairing (67%)
- Motor Vehicle Mechanics and Repairers (50%)
- Painting and Decorating (11%)
- Motor Vehicle Fabricating and Assembling (3%)

Machining and Related (5%)
- Machinist and Machine Tool Setting Up Occupations (3%)
- Welders and Flame Cutting Occupations (2%)

Construction Trades (5%)
- Labourers and Other Elemental Workers (2%)

Other (23%)
- Material Handling and Related (3%)
- Services (3%)
- Managerial and Administrative (2%)
- Sales (2%)

Engineering and Engineering Technologies

Auto Body Repairs

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(8 months)

Individuals entering this field learn how to repair automobile and truck bodies. The minimum entry requirements vary depending on the program (pre-employment or skill upgrading) and the institution, but most students have completed high school before enrolling. All provinces except Prince Edward Island and Ontario offer programs in auto body repairs, which typically take about eight months.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. This field has fallen slightly in popularity in recent years, as the total number of students completing these programs dropped from 528 in 1984 to 413 in 1987. Under current conditions, about 15% fewer students per year should complete this course over the 1981 to 1995 period than in the past.

Activity of Graduates

The proportion of part-time students in this field was about twice the average for all trade school students. The share who continued their education upon completing their studies was significantly less than the average, and thus these students were much more likely to look for employment immediately upon graduating. These graduates were somewhat less successful than other trade school students in finding employment.

Graduates Who Entered the Labour Force

Graduates in auto body repairing primarily find jobs as motor vehicle body repairers, auto body painters and decorators, motor vehicle body assemblers and auto body welders. When looking for work, they compete primarily with community college graduates in similar programs. Two years after graduation, 1986 graduates earned somewhat less than the average income of all trade graduates, regardless of occupation. The average earnings of 1982 graduates, however, grew at a slightly higher rate than the average between 1984 and 1987. Many of these trade graduates change jobs between the third and fifth years of their careers, with most switching between related trades or into product manufacturing or sales and service.

The Course in Retrospect

These graduates were fairly unhappy with their educational experience, as a significantly lower-than-average share reported that they would make the same educational choices again. Nonetheless, the share who found jobs matching their training was somewhat above the average for all trade school students, and the proportion who believed themselves to be overqualified for their jobs was slightly below average. Consequently, about 95% of these graduates reported that they were satisfied with their jobs, significantly above the average for all trade school graduates. Overall working conditions for these graduates improved somewhat in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Auto Mechanics

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(6 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	1,019	1,112	1,082	982
% of Total Graduates at this Level	2.0	2.2	2.2	2.2

Activity of Graduates	Auto Mechanics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	7
Did Not Enter Labour Force	3	4
Part-time Students Already in Labour Force	3	4
Entered Labour Force	88	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	80	3	17
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating, Assembling and Repairing (60%)
- Motor Vehicle Mechanics and Repairers (50%)
- Industrial, Farm and Construction Machinery Mechanics and Repairers (4%)

Transport Equipment Operating (7%)
- Truck Drivers (5%)

Sales (7%)
- Sales Clerks (5%)

Other (26%)
- Services (4%)
- Processing Occupations (4%)
- Construction Trades (4%)

Engineering and Engineering Technologies

Auto Mechanics

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(6 months)

Individuals entering this field specialize in a wide range of trades including auto electricity, auto transmissions, brakes, diagnostic mechanical equipment, front end mechanics, and tire repair and servicing. The admission requirements vary depending on the program (pre-employment or skill upgrading) and the institution, but most entrants possess a high school diploma. Institutions in all provinces except Prince Edward Island offer auto mechanic programs, which usually require about six months to complete.

Graduate Trends and Projections

The number of graduates reflects the future number of persons who will be competing for similar kinds of jobs. Mirroring an increase in the relative popularity of this field, the number of graduates rose from 1,019 in 1984 to 1,112 in 1987. Under current conditions, about 5% fewer students should complete this course than in the past.

Activity of Graduates

Average proportions of these graduates pursue their program on a part-time basis or continue their education upon completion of the program. A larger-than-average proportion enter the labour force, with about 80% finding full-time jobs and an average proportion remaining unemployed.

Graduates Who Entered the Labour Force

The majority of these graduates work as motor vehicle mechanics and repairers, while smaller numbers find jobs as industrial, farm and construction machinery mechanics and repairers, engineering technologists and technicians, sales clerks and electronic equipment installers and repairers. Generally, to become fully qualified as a motor vehicle mechanic, an individual must undergo several years of apprenticeship training before receiving approval from the relevant provincial regulators. Two years after graduation, 1986 graduates earned more than the average for this level, regardless of occupation. Graduates from this program generally face job competition from trade/vocational graduates with a diploma or certificate in auto body repairs and from community college graduates with a diploma or certificate in mechanical engineering. About 50% of 1982 graduates changed jobs over the 1984-to-1987 period, generally leaving positions as motor vehicle mechanics and repairers to become industrial, farm and construction machinery mechanics and repairers. The average salary of 1982 graduates increased more slowly over the 1984-to-1987 period than the average for other graduates at this level.

The Course in Retrospect

A slightly smaller-than-average proportion of these graduates would select the same program if the choice had to be made again. While this may reflect the higher-than-average proportion who felt overqualified for their work, it should be noted that a larger-than-average proportion found jobs that matched their education and an average proportion were satisfied with their work. This situation remained stable over the 1984-to-1987 period, with the exceptions that larger percentages were employed full-time and found jobs related to their education in 1987 than in 1984.

Heavy Equipment Mechanics

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(9 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	2,519	2,004	1,949	1,769
% of Total Graduates at this Level	4.9	4.1	4.1	4.1

Activity of Graduates	Heavy Equipment Mechanics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	7
Did Not Enter Labour Force	2	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	92	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	1	15
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating, Assembling and Repairing (51%)
- Industrial, Farm and Construction Mechanics and Repairers (32%)
- Motor Vehicle Mechanics and Repairers (10%)

Transport Equipment Operating (8%)
- Truck Drivers (6%)

Construction Trades (6%)
- Excavating, Grading and Related (2%)

Machining and Related (5%)
- Machinist and Machine Tool Setting Up (3%)
- Welding and Flame Cutting (1%)

Other (30%)
- Processing Occupations (6%)
- Services (5%)
- Sales (2%)
- Managerial and Administrative (2%)

Heavy Equipment Mechanics

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(9 months)

Individuals entering this field seek training in the operation and the mechanics of heavy equipment such as backhoes, heavy cranes, forestry equipment and load bulldozers. The entry requirements vary depending on the program (pre-employment or skill upgrading) and the institution, but most entrants possess a high school diploma. These programs typically take about nine months to complete and are offered in all provinces except Prince Edward Island.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. This field has declined in popularity in recent years, as the total number of graduating students dropped from 2,519 in 1984 to 2,004 in 1987. Under current conditions, about 15% fewer students per year should complete this course than in the past.

Activity of Graduates

The proportion of students who complete their formal studies on a part-time basis is very small, as is the proportion who continue their education after graduating, perhaps reflecting a strong demand for these graduates. Students completing these courses are more likely to look for employment immediately after graduating than other graduates, and are equally successful in finding employment. More than 80% find full-time employment, significantly above the average for all trade school graduates, while virtually none work on a part-time basis. Their rate of unemployment is slightly below the average.

Graduates Who Entered the Labour Force

Graduates in this field primarily find jobs as industrial, farming and construction machinery mechanics, motor vehicle mechanics, truck drivers and machinists and in machine tool setting-up occupations. These jobs are found across all industries, but especially in transportation and related industries. When looking for work these graduates compete primarily among themselves and with community college graduates from similar programs. Two years after graduation, 1986 graduates earned significantly more than the average income of all trade graduates, regardless of occupation. The average earnings of 1982 graduates also grew at a somewhat higher rate between 1984 and 1987 than the average earnings of all other trade school students. Many of these graduates change jobs between the third and fifth years of their careers, with most switching between related trades or into sales.

The Course in Retrospect

Heavy equipment mechanic graduates appear fairly happy with their educational experience, as a slightly higher-than-average share reported that they would make the same educational choices again. The share of those who found jobs matching their training was slightly below the average for all trade school students, while the proportion who believed themselves to be overqualified was slightly above the average. More than 90% expressed satisfaction with their jobs, virtually the same as the average for all trade school graduates. Overall working conditions for these graduates in heavy equipment mechanics improve in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Other Mechanical Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (10 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	2,788	2,527	2,458	2,231
% of Total Graduates at this Level	5.5	5.1	5.1	5.1

Activity of Graduates	Other Mechanical EngineeringTechnologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	7
Did Not Enter Labour Force	2	4
Part-time Students Already in Labour Force	7	4
Entered Labour Force	86	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	2	16
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating, Assembling and Repairing (30%)
- Industrial, Farm and Construction Machinery Mechanics and Repairers (7%)
- Aircraft Mechanics and Repairers (6%)
- Motor Vehicle Mechanics and Repairers (5%)
- Electrical Equipment Installers and Repairers (3%)
- Aircraft Fabricators and Assemblers (1%)

Crafts and Equipment Operating (19%)
- Stationary Engine and Utilities Equipment Operators (13%)
- Power Station Operators (5%)

Other (51%)
- Services (7%)
- Construction Trades (7%)
- Clerical and Related (7%)
- Transport Equipment Operators (5%)

Other Mechanical Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(10 months)

People entering this field obtain training in such fields as aircraft, marine, small engine and agricultural equipment mechanics and in hydraulics. The prerequisites for admission vary depending on the program (pre-employment or skill upgrading) and the institution, but most entrants have completed at least their secondary education. Institutions in all provinces offer programs in the various mechanical trades, which normally take about 10 months to finish.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. This field has remained fairly steady in popularity in recent years, although the total number of graduating students dropped from 2,788 in 1984 to 2,527 in 1987. Under current conditions, about 10% fewer students per year should complete this course than in the past.

Activity of Graduates

The proportion of students who complete these programs through part-time study is about twice the average for all trade school students. A slightly lower-than-average share continue their education after graduating, suggesting a strong demand for these graduates. Graduates in this field are just as likely as other trade students to look for employment after their studies, and were also just as successful in finding it. Over 80% find full-time employment, significantly above the average, while the rate of unemployment is about average.

Graduates Who Entered the Labour Force

Students completing these programs primarily find jobs as industrial, farming and construction machinery mechanics, aircraft mechanics, motor vehicle mechanics, electrical equipment installers and repairers, stationary engine and utilities equipment operators, and power station operators. These jobs cut across the industrial spectrum, but are especially concentrated in transportation and storage, trade contracting, automobile vehicles and parts sales and service, and the transportation equipment industry. When looking for work these graduates compete primarily among themselves and with community college graduates in similar programs. Two years after graduation, 1986 graduates earned significantly more than the average income of all trade graduates, regardless of occupation. The average earnings of 1982 graduates, however, grew at a slightly lower rate between 1984 and 1987 than the average earnings of all other trade school students. Many of these graduates change jobs between the third and fifth years of their careers, with most moving between the different mechanical trades or into sales work.

The Course in Retrospect

These graduates appear slightly unhappy with their educational experience, as a somewhat lower-than-average share reported that they would make the same educational choices again. The proportion who found jobs matching their training was slightly below the average for all trade school students, and the proportion who believed themselves to be overqualified was also slightly below the average. About 90% reported that they were satisfied with their jobs, slightly below the average for all trade school graduates. It should be noted, however, that overall working conditions improve significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Other Engineering

Undergraduate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,557	1,899	2,030	2,086	2,162
% Women Graduates	8.3	9.6	14.9	15.0	15.1
% of Total Graduates at this Level	1.6	1.8	1.7	1.7	1.7

Activity of Graduates	Other Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	29	14
Did Not Enter Labour Force	5	5
Part-time Students Already in Labour Force	9	20
Entered Labour Force	57	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	83	5	12
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences (67%)

- Industrial Engineers (13%)
- Civil Engineers (9%)
- Electrical Engineers (7%)
- Systems Analysts, Computer Programmers and Related (6%)
- Other Professional Engineers (6%)
- Mechanical Engineers (5%)
- Engineering Technologists and Technicians (4%)

Managerial and Administrative (15%)

- Sales and Advertising Managers (3%)
- Production Managers (2%)

Other (18%)

- Product Fabricating (3%)
- Sales (3%)
- Teaching and Related (2%)

Engineering and Engineering Technologies

Other Engineering

Undergraduate
University (4 years)

Individuals entering this field specialize in such diverse areas as aerospace and aeronautical engineering, industrial engineering, mining engineering, metallurgical engineering and computer engineering. The admission requirements vary depending on the university and the program but in general, enrollments are limited and the entry requirements are high. Applicants must possess a high school diploma (Diploma of Collegial Studies in Quebec) with high grades, especially in mathematics, physics, chemistry and biology. Major universities throughout Canada offer these programs, which students can normally complete within four years, sometimes as part of a CO-OP program combining work and study. Many universities offer certificate or diploma programs in some of these engineering fields that may be shorter in duration than the undergraduate degree. Women accounted for 15% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of these graduates who completed their degrees through part-time study was sharply below average compared with all other graduates at this level, suggesting that full-time study is required to complete this program successfully. The share who decided to continue their formal education upon graduation was sharply higher than average, implying that a higher degree enhances career prospects in this field. As a result, these graduates were somewhat less apt to look for work immediately upon graduation than all other graduates at this level. Once in the labour market, they were more successful in finding full-time employment than other graduates, but the proportion who found part-time work was significantly below average, leading to a slightly higher-than-average unemployment rate.

Graduates Who Entered the Labour Force

The majority of graduates from these programs find employment as industrial, civil, electrical and mechanical engineers, as engineering technologists/technicians and in engineering-related management positions. These jobs are found in most industries, but are concentrated in the architectural, engineering and other scientific services sectors, and in the machinery and transportation equipment industries. These graduates compete primarily with other university graduates in the various engineering fields for the available jobs. Regardless of occupation, they generally earn somewhat more than the average for all other graduates at this level. The average earnings of 1982 graduates, however, grew at a somewhat slower rate than average between 1984 and 1987. Many change jobs between the third and fifth years of their careers, usually within engineering or into engineering-related management.

The Course in Retrospect

Graduates from these programs were fairly satisfied with their educational experience, as the proportion who reported that they would make the same educational choices again was virtually the same as the average for all other graduates at this level. Moreover, the proportion who found jobs matching their undergraduate training was sharply above average, while the proportion who believed themselves to be overqualified for their jobs was significantly below average. Nonetheless, a slightly lower-than-average proportion reported that they were satisfied with their jobs. Overall work conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Other Engineering

Master's
University (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	257	419	400	397	377
% Women Graduates	7.8	10.0	9.8	9.9	9.9
% of Total Graduates at this Level	1.8	2.6	2.3	2.3	2.3

Activity of Graduates	Other Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	6
Did Not Enter Labour Force	8	6
Part-time Students Already in Labour Force	25	33
Entered Labour Force	56	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	92	4	4
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (71%)

- Civil Engineers (10%)
- Industrial Engineers (8%)
- Systems Analysts and Computer Programmers (8%)
- Mining Engineers (6%)
- Geologists (5%)

Managerial and Administrative (12%)

- Other Managers and Administrators (5%)
- Organization and Methods Analysts (3%)

Teaching (9%)

- University (7%)
- Community College and Vocational (2%)

Other (8%)

Engineering and Engineering Technologies

Other Engineering

Master's
University (2 years)

At the master's level in this field, people specialize in such areas as aeronautical and aerospace, industrial, mining, biomedical, geological and petroleum engineering. Entry requirements vary depending on the university, but in general, applicants must have an honours undergraduate degree in engineering. Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. These programs are offered by major universities in all provinces except Prince Edward Island and can generally be completed within two years, sometimes as part of a CO-OP program combining work and study. Some universities offer graduate diploma or certificate programs which are shorter in duration but still require an undergraduate degree for entry. Men dominate this field, with women accounting for only 10% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose markedly over the 1981-to-1984 period but has since fallen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A smaller-than-average proportion of these graduates pursued their degree on a part-time basis, and the proportion who continued their education after receiving their master's degree was above average. While these graduates were just as likely as others to be looking for a job upon graduating, they were more successful in finding it, with a much larger-than-average proportion working full-time.

Graduates Who Entered the Labour Force

The majority of these graduates obtain work as civil engineers in the business service industry, while a smaller number work as systems analysts, industrial and mining engineers, and engineering technologists and technicians. Regardless of occupation, 1986 graduates earned almost as much as the average for all master's graduates in 1988. Generally, graduates from this field of study encounter competition for jobs from undergraduates with a degree, diploma or certificate in civil engineering, as well as from community college graduates with a diploma or certificate in a related field.

About 60% of 1982 graduates changed jobs between 1984 and 1987, usually moving out of engineering into positions as systems analysts, general managers and other senior officials. The average salary of these graduates increased more slowly over the 1984-to-1987 period than did that of other master's graduates.

The Course in Retrospect

The proportion of these graduates (75%) who would select the same program of study if the choice had to be made again was about the same as the average for all other master's graduates. This reflects their average earnings, and the fact that average proportions found jobs related to their education, expressed satisfaction with their jobs or felt overqualified for their jobs compared with other master's graduates.

Other Engineering

Doctorate
University (4 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	54	44	68	76	76
% Women Graduates	1.9	9.1	7.4	7.5	7.4
% of Total Graduates at this Level	3.0	2.3	2.9	2.9	2.9

Activity of Graduates	Other Engineering Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	4	20
Entered Labour Force	96	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	88	8	4
Average for all Fields at this Level	88	7	5

Working Full-time

Natural Sciences and Engineering (48%)
- Civil Engineers (17%)
- Electrical Engineers (9%)
- Supervisory Occupations in Architecture and Engineering (8%)
- Physical Sciences Technologists and Technicians (7%)
- Systems Analysts and Computer Programmers (7%)

Teaching and Related (37%)
- University Teaching and Related (30%)
- University Teaching (7%)

Managerial and Administrative (7%)
- Government Inspectors and Regulatory Officers (7%)

Other (8%)
- Construction (7%)

Engineering and Engineering Technologies

Other Engineering

Doctorate
University (4 years)

Individuals at the doctoral level in this field specialize in a wide variety of areas, including aeronautical and aerospace engineering, and industrial, mining, biomedical, geological and petroleum engineering. The entry requirements vary depending on the university, but all applicants must have a master's degree in a given area of engineering or the equivalent. Most universities require applicants to undergo an interview and provide letters of reference. Doctoral programs in this field are offered by major universities in all provinces except Newfoundland, Prince Edward Island and Manitoba, and are generally completed within four years. Women accounted for only 7% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period but has since risen to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that there will be about 170 more graduates over the 1989-to-1995 period than there were between 1981 and 1987.

Activity of Graduates

The proportion of these doctorates who obtained their degrees on a part-time basis (and thus were already in the labour force) was one-fifth of the average for all doctorates, suggesting that these programs require the full energies of their students. Upon completion, moreover, virtually none of these doctorates pursued post-doctoral studies, almost all choosing to look for work instead. These doctorates were fairly successful in finding a job, with almost nine out of ten finding full-time jobs and most of the rest obtaining part-time work.

Graduates Who Entered the Labour Force

Doctorates in these disciplines generally obtain employment as university teachers or in university-related non-teaching positions, as civil engineers or as systems analysts and computer programmers. These positions are found in various areas, including the federal government, utility industries, the communications sector and engineering service industries. These doctorates face virtually no direct competition from doctorates in other fields for university teaching positions, but must compete with other university graduates in civil engineering, computer science and sometimes chemistry at all levels for the non-university positions. The average earnings of these 1986 doctorates, two years after graduation, were significantly higher than the average earnings of all doctorates. Furthermore, the average earnings of 1982 doctorates increased at a somewhat faster rate between 1984 and 1987 than the average. Only a few of these doctorates changed jobs between the third and fifth years of their careers, generally moving from aerospace into other areas of engineering.

The Course in Retrospect

These doctorates made a relatively easy transition from the education system into the workforce, with virtually all reporting that they were satisfied with their current jobs. All found jobs matching their education, while the proportion who believed that they were overqualified for their jobs was slightly below average. These doctorates appeared to be fairly satisfied with their educational experience as eight out of ten (slightly above the average for all doctorates) reported that they would make the same educational choices again. Overall working conditions for these doctorates improved significantly in terms of earnings and job satisfaction but deteriorated in terms of employment between the third and fifth years of their careers.

Instrumentation

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	377	482	450	436	429
% Women Graduates	1.6	1.9	4.2	5.6	13.5
% of Total Graduates at this Level	0.8	0.8	0.8	0.8	0.8

Activity of Graduates	Instrumentation Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	7	7
Entered Labour Force	81	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	88	2	10
Average for all Fields at this Level	75	12	13

Working Full-time

Product Fabricating (41%)
- Precision Instrument Mechanics and Repairers (20%)
- Electronic and Related Equipment Installers and Repairers (9%)
- Electrical and Related Equipment Installers and Repairers (4%)

Natural Sciences, Engineering and Mathematics (19%)
- Engineering Technologists and Technicians (10%)
- Systems Analysts (3%)

Construction Trades (15%)
- Wire Communications and Related Equipment Installers and Repairers (8%)
- Construction Electricians and Repairers (3%)

Other (25%)
- Sales (6%)
- Processing Occupations (4%)
- Management and Administration (4%)

Engineering and Engineering Technologies

Instrumentation

Career Program
Community College (2 years)

This field of study covers such areas as assembling, inspecting and repairing instruments, as well as measurement and numerical control, oscilloscope operating and precision instrumentation. The prerequisites for entrance vary from institution to institution, but in general, candidates must have completed senior high school courses in English (French), mathematics, physics, chemistry and draughting. Courses in mechanics and computers, as well as in electrical/electronics, are recommended. The course is offered in all provinces except Newfoundland and Prince Edward Island and generally takes two years. At some colleges it is possible to take this course through a CO-OP program, although only about 5% of these graduates do so. The majority of graduates are men (97%) and a large number are concentrated in Quebec (43%).

Graduate Trends and Projections

The relative popularity of this course rose slightly over the 1981-to-1984 period but has since fallen back to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 15% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Only about half the average proportion of these graduates immediately continue their education after graduating, with a much larger proportion than average choosing to look for a job instead. This is fairly typical of graduates in engineering technology fields. The proportion of students receiving their diploma/certificate on a part-time basis approximated the average. These graduates not only were highly successful in finding employment but almost all were working full-time.

Graduates Who Entered the Labour Force

Most instrumentation graduates find employment as precision instrument mechanics and repairers in the electrical/electronic products industry, while smaller numbers work as engineering technologists/technicians, or as installers and repairers of electronic, wire communication and related equipment. Graduates from this course generally face job competition from graduates in electrical/electronic technology.

Two years after graduation, 1986 graduates were earning about 35% more than other graduates at this level, regardless of occupation. The proportion of these graduates not working declines over time, largely the result of increases in the number who find full-time employment. Between the third and fifth years after graduation, the average salary of instrumentation graduates increased at a rate approximating the average for other community college graduates. An average proportion (45%) change jobs during this time, although most continue to do the same type of work. Almost 80% of 1982 instrumentation graduates who were precision instrument mechanics and repairers in 1984 were still in the same job category in 1987.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by average levels of job satisfaction. This probably results from a relatively strong match between field of study and current job, smaller numbers feeling overqualified and a much larger-than-average salary. Furthermore, 70% of 1986 instrumentation graduates indicated that they would make the same education decisions if the choice were to be made again. This attitude is sustained between the third and fifth years of their careers, with more feeling their job matched their training and more being content with past educational decisions. A significantly larger proportion of 1982 graduates felt overqualified in 1987 than in 1984, but this may reflect a significant proportion who upgraded their educational qualifications between 1984 and 1987.

Other Engineering Technologies (Surveying)

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	300	270	193	187	184
% Women Graduates	10.7	11.5	6.7	3.8	0.7
% of Total Graduates at this Level	0.6	0.5	0.3	0.3	0.3

Activity of Graduates	Other Engineering Technologies (Surveying) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	10	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	8	7
Entered Labour Force	81	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	4	14
Average for all Fields at this Level	75	12	13

Working Full-time

Natural Sciences, Engineering and Mathematics (78%)	Other (22%)
• Surveyors (50%) • Engineering Technologists and Technicians (6%) • Supervisors: Architecture and Engineering (5%) • Draughtspersons (2%)	• Clerical (6%) • Construction Trades (5%) • Services (3%)

Other Engineering Technologies (Surveying)

Career Program
Community College (2 years)

People entering this field obtain training in aerial, civil, hydrographic, seismic, gravity and magnetometer surveying. Entry requirements vary depending on the institution; in general, students must complete some high school with senior level courses in mathematics, physics, draughting and English (French). Normally students complete their training within two years, sometimes through a program combining work and study. Community colleges in all provinces except Prince Edward Island, New Brunswick and Quebec offer instruction in surveying. The majority of graduates are men, with the proportion of women dropping from 11% to 7% between 1981 and 1987.

Graduate Trends and Projections

The relative popularity of this course among students declined consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 25% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Like most graduates in engineering technology fields, a very large proportion of graduates chose to look for a job upon graduation instead of continuing their education. The proportion of students receiving their diploma or certificate on a part-time basis was slightly above average. The unemployment rate for these graduates was slightly above average and the second highest of all engineering graduates. This may be explained by the almost complete absence of part-time employment.

Graduates Who Entered the Labour Force

Most graduates find employment as surveyors in the business service industry, while a smaller number work as engineering technologists and technicians or in the clerical or construction fields. Graduates from this course face competition from university, community college and trade/vocational graduates in surveying, civil technology and civil engineering.

Two years after graduation, 1986 graduates were earning about 15% more than other graduates at this level, regardless of occupation. Furthermore, the proportion of unemployed graduates declines over time as more full-time jobs become available. Between the third and fifth years after graduation, the average salary increase of surveying graduates was slightly less than average. A larger-than-average proportion (50%) change jobs during this period, with most of the movement occurring between the surveying, engineering technologist/technician and construction occupations.

The Course in Retrospect

Job satisfaction among these graduates was lower-than-average, although salary levels and the match between field of study and current job were quite high. Graduates may be working in a job which is directly related to their training and earning a high salary at this job, but if they were not satisfied with the course subject matter they are not likely to be satisfied with a job encompassing the same subject matter. Only about two out of every five 1986 surveying graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, 1982 graduates tended to become disillusioned with their jobs, increasingly expressing the sentiment that they were overqualified or that their jobs were poorly matched to their training.

Other Engineering Technologies

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	598	742	562	545	536
% Women Graduates	17.9	19.7	18.9	20.8	28.1
% of Total Graduates at this Level	1.2	1.3	1.0	1.0	1.0

Activity of Graduates	Other Engineering Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	62	25
Did Not Enter Labour Force	3	3
Part-time Students Already in Labour Force	7	7
Entered Labour Force	28	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	53	20	27
Average for all Fields at this Level	75	12	13

Working Full-time

Clerical (24%)
- General Office Clerks (5%)

Natural Sciences, Engineering and Mathematics (17%)
- Draughtspersons (6%)
- Systems Analysts (3%)

Services (14%)
- Guards and Watchpersons (4%)
- Food and Beverage Servers (3%)

Sales (12%)
- Salespersons (9%)

Other (33%)
- Management and Administration (9%)
- Agriculture (4%)
- Product Fabricating (3%)
- Construction Trades (3%)

Engineering and Engineering Technologies

Other Engineering Technologies

Career Program
Community College (2 years)

People entering this field learn engineering design and draughting, cartography, mechanical draughting, repairs and service, metrology and physics. Entry requirements vary by program and institution, but in general, applicants must possess senior high school credits in mathematics, physics, geography, draughting and English (French). These programs are offered by community colleges in all provinces except Prince Edward Island and are normally completed within two years, sometimes as part of a CO-OP program combining work and study. The majority of graduates are men, with women accounting for 19% of the 1987 total. The average age of 1986 graduates (20) was the youngest of all community college graduates.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1984 period but has since fallen marginally. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of these graduates who continued their education immediately upon graduation was more than twice the average, and consequently a dramatically smaller proportion than average chose to look for a job. The proportion of students receiving their diploma or certificate on a part-time basis approximated the average. Not only was a much smaller-than-average proportion of these graduates successful in finding a job, but a much larger proportion than average were working only part-time.

Graduates Who Entered the Labour Force

Perhaps as a result of the poor employment prospects at the time of graduation, a large number of graduates immediately continued their education. Most of the graduates who are looking for jobs do not find one directly related to their major field of study, perhaps as a result of the mixture of courses. Of those who do, most work as draughtspersons in the business and professional services industry. Those who opt to accept unrelated employment until the market improves generally work in sales, as security guards or as food and beverage servers. Graduates from this course seeking employment as draughtspersons, generally face job competition from community college or trade/vocational graduates in architecture and design draughting.

Two years after graduation, 1986 graduates were earning about 10% less than other graduates at this level, regardless of occupation. Unemployment remained high among 1982 graduates four years after graduating, explaining why a very large proportion upgraded their educational qualifications over the 1984-to-1987 period. Between the third and fifth years after graduation, the average salary of these graduates increased at a rate approximating the average. Over the same period, a larger-than-average proportion changed jobs, usually moving among such occupations as surveyors, draughtspersons and engineering technologists or technicians, or moving from unrelated occupations into occupations in architecture and engineering.

The Course in Retrospect

Although almost all labour market indicators (a high unemployment rate, a lower-than-average salary, and a weak match between current job and past education) give the impression that the transition from school to work was difficult for these graduates, a larger-than-average proportion stated that they were satisfied with their current job and almost two out of three indicated that they would make the same educational decisions if the choice had to be made again. Between the third and fifth years of their careers, 1982 graduates reported a stronger match between current job and past education, fewer felt overqualified for their job, more were satisfied with their current job and the proportion willing to repeat past educational decisions increased. This apparent turn-around resulted from salary increases approximating the average and an increase in overall employment as well as in related employment.

Other Engineering Technologies (Draughting)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (12 months)

Engineering and Engineering Technologies

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	466	245	238	216
% of Total Graduates at this Level	0.9	0.5	0.5	0.5

Activity of Graduates	Other Engineering Technologies (Draughting) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	10	7
Did Not Enter Labour Force	4	4
Part-time Students Already in Labour Force	1	4
Entered Labour Force	85	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	78	5	17
Average for all Fields at this Level	74	9	17

Working Full-time

Product Fabricating, Assembling and Repairing (23%)
- Electrical/Electronic Fabricating, Installing and Repairing (9%)
- Industrial, Farm and Construction Machinery Mechanics and Repairers (5%)
- Precision Instrument Mechanics and Repairers (4%)

Natural Sciences, Engineering and Mathematics (17%)
- Surveyors (7%)
- Engineering Technologists & Technicians (2%)
- Physical Sciences Technologists andTechnicians (2%)

Machining and Related (8%)
- Filing, Grinding, Buffing, Cleaning and Polishing (5%)
- Welding and Flame Cutting (3%)

Clerical (8%)
- Shipping and Receiving Clerks (5%)

Other (44%)
- Construction Trades (6%)
- Services (6%)

Engineering and Engineering Technologies

Other Engineering Technologies (Draughting)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(12 months)

People entering this field undertake training in engineering design and draughting, cartography and mechanical draughting. The admission requirements vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most students have completed their secondary education before enrolling. Institutions in all provinces except Prince Edward Island, Manitoba and Alberta offer draughting programs, which students generally complete within 12 months.

Graduate Trends and Projections

The number of graduates reflects the future number of persons who will be competing for similar kinds of jobs. The number of graduates in this field fell from 466 in 1984 to 245 in 1987, reflecting a decline in its relative popularity. Under current conditions, about 35% fewer students per year should complete this course than in the past.

Activity of Graduates

An average proportion of these graduates pursue their studies on a part-time basis, and a larger-than-average proportion enter the labour force upon graduating. They are generally more successful in finding full-time work and they have a lower unemployment rate than others at this level.

Graduates Who Entered the Labour Force

Many of these graduates find work in the electrical/electronic fabricating, installing and repairing occupations, as surveyors or industrial, farm and construction machinery mechanics and repairers in such industries as business service and product fabricating, assembling and repairing. A smaller number work as physical science technologists and technicians, engineering technologists and technicians and electrical/electronic equipment installers and repairers. Two years after graduation, 1986 graduates earned about 30% more than other graduates at the same level, regardless of occupation. In general, graduates from this field of study face job competition from trade/vocational graduates with a diploma or certificate in this field as well as from community college graduates with a diploma or certificate in civil technologies or surveying. About 35% of 1982 graduates changed jobs between 1984 and 1987, generally moving out of draughting occupations into supervisory positions in architecture and engineering. The average salary for these graduates rose much faster over the 1984-to-1987 period than the average for other graduates at this level.

The Course in Retrospect

A smaller-than-average proportion of these graduates (70%) would select the same educational program if the choice had to be made again. This may reflect the smaller-than-average proportion who found work that matched their educational training, but stands in contrast to the high level of job satisfaction as well as the lower-than-average proportion who felt overqualified for their work. Further survey data show that the employment situation for these graduates improved between 1984-to-1987 period.

Transportation Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (3 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	1,260	1,106	1,076	976
% of Total Graduates at this Level	2.5	2.2	2.2	2.2

Activity of Graduates	Transportation Engineering Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	7
Did Not Enter Labour Force	5	4
Part-time Students Already in Labour Force	3	4
Entered Labour Force	81	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	73	1	26
Average for all Fields at this Level	74	9	17

Working Full-time

Transport Equipment Operating (31%)
- Truck Drivers (13%)
- Deck Officers (9%)
- Water Transport Operators (4%)
- Deck Crew (3%)

Teaching and Related (25%)
- Instructors and Training Officers (25%)

Fishing, Trapping and Related (9%)
- Net, Trap and Line Fishing (7%)

Other (35%)
- Construction Trades (6%)
- Machining and Related (5%)
- Processing (5%)
- Sales (5%)
- Services (4%)

Transportation Engineering Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(3 months)

This field of study covers rail, marine, air and motor transportation technologies. The entry requirements vary depending upon the type of program (pre-employment or skill upgrading) and the institution, but most students possess a high school diploma before enrolling. These programs are offered by all provinces except Manitoba, Saskatchewan and Alberta, and normally take about three months to complete.

Graduate Trends and Projections

The number of graduates is a good indicator of the future number of people who will be competing for similar kinds of jobs. Mirroring a decline in the relative popularity of this course, the number of graduates fell from 1,260 in 1984 to 1,106 in 1987. Under current conditions, about 10% fewer students per year should complete this course than in the past.

Activity of Graduates

An average proportion of these graduates pursue their program on a part-time basis, while an above-average proportion continue their education immediately after graduating, perhaps an indication of the segmented nature of the course or a reflection of the individual's desire to maximize their career prospects. A slightly lower-than-average proportion enter the labour force, and although an average proportion work full-time, the unemployment rate is above the norm.

Graduates Who Entered the Labour Force

Many of these graduates find work as instructors and training officers in the transportation industry, while smaller numbers work as deck officers, truck drivers and ship's deck crew. Two years after graduation, the average salary of 1986 graduates was over 30% greater than the average salary for others at this level, regardless of occupation. Graduates from this course generally face job competition from community college graduates with a diploma or certificate in transportation technologies. About 70% of 1982 graduates changed jobs over the 1984-to-1987 period, mostly moving out of truck driving into heavy equipment mechanics and repair. The average salary for 1982 graduates increased faster over the 1984-to-1987 period than the average for other graduates at this level.

The Course in Retrospect

An average proportion of these graduates would select the same program if the choice had to be made again. This may be a reflection of the average proportions who felt overqualified for their jobs and who were satisfied with their work. While earnings were comparatively high, a smaller-than-average proportion found jobs that matched their training. This situation remained stable over the 1984-to-1987 period, with the exceptions that a higher percentage were satisfied with their jobs and more found work related to their education in 1987 than in 1984.

Transportation Technologies

Career Program
Community College (2 years)

Engineering and Engineering Technologies

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	300	310	283	274	270
% Women Graduates	3.7	9.4	8.5	6.9	3.8
% of Total Graduates at this Level	0.6	0.5	0.5	0.5	0.5

Activity of Graduates	Transportation Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	25
Did Not Enter Labour Force	8	3
Part-time Students Already in Labour Force	4	7
Entered Labour Force	82	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	5	11
Average for all Fields at this Level	75	12	13

Working Full-time

Transport Equipment Operating Occupations (32%)
- Pilots, Navigators and Flight Engineers (17%)
- Deck Officers (4%)
- Air Transport Operating Support (3%)
- Deck Crew (3%)
- Bus Drivers (2%)

Natural Sciences, Engineering and Mathematics (16%)
- Engineering Technologists/ Technicians (6%)
- Community Planner (2%)

Product Fabrication and Repairing (15%)
- Aircraft Fabricating and Assembly (3%)
- Inspecting/ Testing Metal Products (3%)
- Aircraft Mechanics (2%)
- Industrial/Farm Mechanics (2%)

Teaching (9%)
- Instructors and Training Officers (9%)

Other (28%)
- Sales (9%)
- Mgmt./ Admin. (8%)
- Clerical (8%)
- Services (3%)

Transportation Technologies

Career Program
Community College (2 years)

Individuals in this field undertake training in air transport (pilot training, air traffic control, in-flight service), motor transport (bus, tow-truck and tractor-trailer training), and rail and marine transport (shipmaster/mate training, navigation and seamanship). Entry requirements vary depending on the program and the institution, but in general, applicants must have completed senior high school courses in mathematics, physics, chemistry and English (French). Most colleges also require applicants to pass diagnostic English (French), mathematics and motor skills tests, and undergo a medical examination and an interview. Community colleges in all provinces except Newfoundland, Prince Edward Island, New Brunswick, Manitoba and Saskatchewan offer instruction in transportation technologies. Students can complete these programs within two years, often as part of a CO-OP program combining work and study. Men make up the majority of graduates, with women accounting for 8% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course remained relatively stable over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

About one-quarter as many of these graduates as other community college graduates continued their education upon graduating, a much larger proportion than average choosing to look for a job instead. This is fairly typical for engineering technology graduates. The proportion of students receiving their diploma/certificate on a part-time basis was smaller than average. A slightly larger-than-average proportion of these graduates (89%) were successful in finding jobs, almost all of which were full-time, but the proportion of these graduates who chose not to enter the labour force was twice the average. As time after graduation increases, the proportion of these graduates not working declined dramatically, as a result of large increases in part-time employment.

Graduates Who Entered the Labour Force

Most transportation technology graduates find employment as pilots, navigators or flight engineers in the transportation industry, while a smaller number work as instructors and training officers, air transport support personnel, deck officers and crew, and bus drivers. Graduates from this course generally face job competition from other community college graduates in this or related fields.

Two years after graduation, 1986 graduates were earning about 15% more than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of transportation technology graduates increased at an average rate. Over this period, a larger-than-average proportion (60%) changed jobs, usually moving from aircraft mechanics to motor vehicle mechanics, from deck crew to deck officers and from instructors and training officers to pilots, navigators, engineers and community college teachers.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by an average proportion of these graduates expressing satisfaction with their current job. This probably results from a relatively strong match between field of study and current job, only average numbers feeling overqualified and greater-than-average salaries. Two out of every three of 1986 transportation technology graduates indicated that they would make the same education decisions if the choice were to be made again. Between the third and fifth years of their careers, job satisfaction for these graduates grew, with more feeling their job matched their training and slightly more being content with past educational decisions. Nonetheless, a much larger proportion felt overqualified for their current job, probably resulting from the fact that nearly one-quarter of these graduates upgraded their qualifications over this period.

English

Undergraduate
University (3 years)

Humanities

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,238	2,616	3,461	3,581	3,729
% Women Graduates	69.2	72.1	72.5	72.9	73.6
% of Total Graduates at this Level	2.3	2.4	2.9	2.9	2.9

Activity of Graduates	English Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	21	14
Did Not Enter Labour Force	6	5
Part-time Students Already in Labour Force	22	20
Entered Labour Force	51	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	76	13	11
Average for all Fields at this Level	80	10	10

Working Full-time

Teaching (30%)
- Secondary School Teachers (11%)
- Elementary and Kindergarten Teachers (10%)
- Elementary and Secondary School Teaching and Related (4%)
- Teachers of Exceptional Students (3%)
- University Teaching & Related (2%)

Managerial and Administrative (22%)
- Financial and Accounting Managers (9%)
- Sales and Advertising Managers (2%)
- General Managers (2%)

Clerical and Related (17%)
- General Office Clerks (3%)
- Receptionists and Information Clerks (3%)
- Secretaries and Stenographers (2%)
- Electronic Data Processing Operators (2%)

Artistic and Literary (6%)
- Writers and Editors (4%)

Other (25%)
- Sales (9%)
- Services (3%)

English

Undergraduate
University (3 years)

People entering this field study the English language and its literature. The admission prerequisites vary depending on the university, but in general, applicants must possess a high school diploma with good grades, especially in English, the humanities and the social sciences. Quebec students must possess a Diploma of Collegial Studies. Universities throughout Canada offer undergraduate English degrees, which students generally can obtain in about three years, sometimes as part of a CO-OP program combining work with study. Some institutions offer diploma or certificate programs of shorter duration. Women dominate this field, accounting for 73% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1984 period but has since risen. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 30% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of English graduates who obtained their degrees on a part-time basis was about average for all graduates at this level. Perhaps as a result of the difficulty experienced by previous English graduates in finding a job, a higher-than-average proportion continued their studies and a significantly lower-than-average proportion looked for work immediately upon graduation. Once in the labour market, however, English graduates were almost as successful as others in finding work, with an unemployment rate only 1% higher than the average.

Graduates Who Entered the Labour Force

In the job market, English graduates generally find work as elementary or secondary school teachers or as financial and sales managers and administrators in government and various business service industries, including printing and publishing, real estate and financial services. They face stiff competition from other university graduates in all fields for the available positions in teaching unless English is a key requirement. (These positions also require an education degree or diploma.) For managerial positions in business and government, English graduates compete with university and community college graduates, especially those in commerce and the social sciences. Two years after graduation, regardless of occupation, 1986 graduates were generally earning less than the average for all graduates at this level. Moreover, the average earnings of 1982 graduates in English grew at a significantly slower rate than the average for all other graduates between 1984 and 1987. Many English graduates changed jobs between the third and fifth years of their careers, mainly moving among different teaching levels or into administration.

The Course in Retrospect

Graduates in English were relatively satisfied with their educational experience, with about 70% indicating that they would make the same educational choices again. The proportion who found jobs matching their undergraduate training, however, was significantly below average, and the proportion who believed themselves to be overqualified for their jobs was significantly above average. Their earnings were also below average and the proportion indicating that they were satisfied with their jobs was significantly below the average. Overall conditions for these graduates did improve, however, in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

English

Humanities

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	302	309	343	340	323
% Women Graduates	60.3	60.2	62.1	63.2	62.9
% of Total Graduates at this Level	2.1	1.9	1.9	1.9	1.9

Activity of Graduates	English Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	17	6
Did Not Enter Labour Force	15	6
Part-time Students Already in Labour Force	24	33
Entered Labour Force	44	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	57	19	24
Average for all Fields at this Level	84	9	7

Working Full-time

Artistic, Literary and Recreational (37%)	Teaching (25%)	Managerial and Administrative (7%)	Other (31%)
• Writers and Editors (37%)	• Secondary School (9%) • Elementary and Kindergarten (7%) • University (5%) • Community College and Vocational (4%)	• Sales and Advertising Management (7%)	

Humanities

English

Master's
University (2 years)

At the master's level in this field, individuals study English literature and creative writing, often specializing in particular historical periods and authors. Admission requirements vary depending on the university, but in general, applicants must possess an honours undergraduate degree in English or a closely related field (e.g., French Literature). Major universities throughout Canada except for those in Prince Edward Island offer master's degrees in English which students can generally complete within two years, sometimes as part of a CO-OP program combining study with work. Some universities offer graduate diplomas or certificate programs that are shorter in duration but which still require the applicant to have completed an undergraduate degree. The majority of graduates are women, who accounted for 62% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course has remained about the same over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Considerably fewer English graduates than other master's graduates pursued their degree on a part-time basis. These graduates were also more likely to continue their education after receiving their degree and thus proportionally fewer entered the labour force. They were significantly less successful in finding a job, leading to an unemployment rate that was more than three times as high as the average for other graduates at this level.

Graduates Who Entered the Labour Force

The majority of these graduates find work as writers and editors in the printing and the educational services industry, while smaller numbers work as elementary, secondary, community college and vocational school teachers. Regardless of occupation, 1986 English graduates earned about 35% less than the average for all master's graduates in 1988. Graduates from this field of study generally face job competition from undergraduates and community college graduates with a degree, diploma or certificate in mass communications or related fields of study. About 65% of 1982 graduates changed jobs between 1984 and 1987, most moving out of writing and editing into secondary school teaching. Their average salary increased at about the same rate over the 1984-to-1987 period as the average of other master's graduates.

The Course in Retrospect

Generally, English graduates seem to feel positive about their educational experience, with approximately 85% indicating that they would make the same educational choices again. This was in spite of the fact that salaries, job satisfaction and the chances of finding related employment were low, as well as the fact that a higher-than-average proportion of these graduates felt overqualified for their jobs. This situation changed little over the 1984-to-1987 period, with the exception that by 1987 an even larger proportion of these graduates felt overqualified for their jobs than in 1984.

English

Humanities

Doctorate
University (5 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	87	68	53	59	59
% Women Graduates	47.1	38.2	64.2	65.3	65.0
% of Total Graduates at this Level	4.8	3.6	2.2	2.2	2.2

Activity of Graduates	English Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	3
Did Not Enter Labour Force	3	2
Part-time Students Already in Labour Force	35	20
Entered Labour Force	60	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	60	21	19
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching and Related (70%)	Managerial and Administrative (20%)	Social Sciences (10%)
• University Teaching (70%)		

English

Doctorate
University (5 years)

People at the doctoral level in this field study English literature and creative writing, specializing in particular historical periods and authors. The admission requirements vary depending on the university, but all applicants must possess a master's degree in English with high standing. Major universities throughout Canada except for Newfoundland and Prince Edward Island award English doctorates, which students generally complete within five years. Women accounted for 64% of total 1987 doctorates.

Graduate Trends and Projections

The relative popularity of this course declined significantly over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly larger-than-average proportion of English doctorates were already employed and pursued their degree through part-time study. The proportion who immediately looked for work upon graduation was substantially below the average for all doctorates. Moreover, their job prospects were unfavourable, with only six out of ten finding full-time jobs and an unemployment rate of about 20%, significantly above the average rate for doctorates in all fields.

Graduates Who Entered the Labour Force

English doctorates generally find work in university teaching, in which they face little or no competition from doctorates in other fields. A 1988 survey showed that English doctorates earned substantially less than all doctorates on average, although the average earnings of 1982 English doctorates rose substantially faster between the third and fifth years of their careers than the average for all doctorates. Only a few English doctorates changed jobs between the third and fifth years of their careers, generally moving from teaching into full-time writing.

The Course in Retrospect

Doctorates in English were fairly happy with their educational choices, as about 85% reported that they would make the same educational decisions again, significantly above the average response for doctorates in all fields. All reported obtaining jobs that matched their training, but at below-average earnings. A higher-than-average proportion believed that they were overqualified for their jobs. Only about 85% reported they were satisfied with their current jobs, significantly below the average for all doctorates. Nonetheless, overall conditions for English doctorates improved significantly between the third and fifth years of their careers in terms of employment, job satisfaction and earnings.

French

Undergraduate
University (3 years)

Humanities

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,159	1,400	1,757	1,802	1,865
% Women Graduates	78.5	79.4	83.0	83.5	84.2
% of Total Graduates at this Level	1.2	1.3	1.5	1.5	1.5

Activity of Graduates	French Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	20	14
Did Not Enter Labour Force	4	5
Part-time Students Already in Labour Force	24	20
Entered Labour Force	52	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	74	13	13
Average for all Fields at this Level	80	10	10

Working Full-time

Teaching (37%)
- Elementary and Kindergarten Teachers (28%)
- Secondary School Teachers (7%)

Clerical and Related (29%)
- Secretaries and Stenographers (8%)
- Hotel Clerks (5%)
- Receptionists and Information Clerks (3%)
- Travel Clerks, Ticket, Station, Freight Agents (3%)
- Electronic Data Processing Operators (3%)

Managerial and Administrative (9%)
- Services Management (3%)

Other (25%)

French

Undergraduate
University (3 years)

Individuals entering this field study the French language and its literature and culture. The entry requirements vary depending on the university, but in general, applicants must possess a high school diploma with good marks in French and the humanities. Quebec students must complete a Diploma of Collegial Studies. Most universities throughout Canada offer undergraduate degrees in French as well as diploma or certificate programs that are shorter in duration. Students normally complete these studies within three years. Women accounted for 83% of all 1987 graduates, up from 78% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1984 period but has since risen marginally. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 25% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

An above-average proportion of French graduates obtained their degrees through part-time study, compared with all graduates at this level. A larger-than-average proportion decided to continue their studies (perhaps due to the difficulty past graduates had in finding a job) and thus a smaller proportion looked for work immediately after graduation. Not only were these graduates somewhat less successful finding work than all other graduates, but the proportion obtaining only part-time work was above average. Consequently, their rate of unemployment was somewhat higher than the average.

Graduates Who Entered the Labour Force

Most graduates in French find jobs in elementary school teaching, for which they also require a teaching certificate or education degree. Others find jobs as secretaries, receptionists and sales clerks in the printing and publishing industry and in government. When looking for work, these graduates compete with other university graduates in all fields for the teaching positions, unless French is a specific requirement. Two years after graduation 1986 French graduates, regardless of occupation, earned significantly less than the average for all graduates at this level. Moreover, the average earnings of 1982 graduates in French grew at a somewhat slower pace over the 1984-to-1987 period than the average earnings of all other graduates at this level. Only a few French graduates changed jobs between the third and fifth years of their careers, and most of these job changes were between the various teaching levels in the educational system.

The Course in Retrospect

Individuals with undergraduate French degrees appeared to be satisfied with their educational experience, as about 70% reported that they would make the same educational choices again. The proportion who found jobs matching their undergraduate training, however, was significantly below average and the proportion who believed themselves to be overqualified for their jobs was significantly above average. Consequently, a lower-than-average proportion were satisfied with their jobs as compared to all other graduates. The overall situation of these graduates did improve, however, in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

French

Master's
University (2 years)

Humanities

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	115	119	141	140	133
% Women Graduates	68.7	77.3	66.7	67.9	67.5
% of Total Graduates at this Level	0.8	0.7	0.8	0.8	0.8

Activity of Graduates	French Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	23	6
Did Not Enter Labour Force	6	6
Part-time Students Already in Labour Force	28	33
Entered Labour Force	43	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	43	29	28
Average for all Fields at this Level	84	9	7

Working Full-time

Teaching (53%)	Managerial and Administrative (13%)	Artistic, Literary and Recreational (11%)	Other (23%)
• Elementary and Kindergarten Teachers (19%) • Community College and Vocational (13%) • Post-Secondary (11%) • Other Elementary and Secondary (10%)	• General Managers (13%)	• Translators and Interpretors (11%)	

Humanities

French

Master's
University (2 years)

Individuals in this field at the master's level study the French language and literature as well as creative writing. Entry requirements vary depending on the university, but in general, applicants must have completed an undergraduate degree with honours in French. The master's degree in French is offered in all provinces except Newfoundland and Prince Edward Island and can typically be completed within two years. Women accounted for 67% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Conspicuously fewer French graduates than other master's graduates pursued their degrees on a part-time basis. These graduates had a higher probability than others of continuing their education and a lower probability of looking for employment after graduating. Those who did enter the labour force were considerably less successful in finding a job, as revealed by a very high unemployment rate.

Graduates Who Entered the Labour Force

The majority of these graduates find work as elementary and kindergarten teachers, while smaller numbers work as community college and other post-secondary school teachers, and translators and interpreters. Regardless of occupation, 1986 French graduates earned about 20% less in 1988 than the average for all master's graduates. Graduates from this field generally face job competition from undergraduates with a degree, diploma or certificate in elementary or secondary teacher training or a related discipline. While about 70% of 1982 graduates changed jobs between 1984 and 1987, only about 15% were doing different work; most of those who found different employment moved out of positions as translators and interpreters into jobs as instructors and training officers. The salaries of these graduates increased at about the same rate over the 1984-to-1987 period as the average.

The Course in Retrospect

Generally, French graduates appear to feel positive toward their educational experience, with about 80% indicating that they would make the same educational choices again. These graduates encountered a lower-than-average probability of finding related employment and earned salaries below the average, but they expressed a relatively high level of job satisfaction and a smaller-than-average proportion felt overqualified. This situation changed somewhat over the 1984-to-1987 period, with a large increase in the proportion satisfied with their job and more of these graduates finding a job related to their education.

French

Humanities

Doctorate
University (5 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	34	25	28	31	31
% Women Graduates	50.0	48.0	46.4	47.3	47.0
% of Total Graduates at this Level	1.9	1.3	1.2	1.2	1.2

Activity of Graduates	French Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	3
Did Not Enter Labour Force	13	2
Part-time Students Already in Labour Force	32	20
Entered Labour Force	55	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	100	0	0
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching (72%)
- University Teaching (72%)

Managerial and Administrative (28%)
- Administrators in Teaching and Related Fields (28%)

Humanities

French

Doctorate
University (5 years)

At the doctoral level, people in this field study the French language and its literature and creative writing, specializing in particular historical periods or authors. The admission prerequisites vary depending on the university, but, all applicants must have a master's degree with high standing. Universities in Quebec, Ontario and British Columbia award doctorates in French, which students typically complete within five years. Women accounted for 46% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period and has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 30% more over the 1989-to-1995 period than it was between 1981 and 1987, although the projected number of graduates begins to decline in 1991.

Activity of Graduates

A significantly larger-than-average proportion of French doctorates obtained their degrees through part-time study, often because they were already working. None continued with post-doctoral studies. Since so many of these doctorates were already in the labour force, a smaller-than-average proportion immediately looked for work upon graduating, with only a few deciding not to seek employment. Typical for their small number, all French doctorates found full-time jobs, compared to an average unemployment rate of 5% for all doctorates.

Graduates Who Entered the Labour Force

French doctorates primarily find employment in university teaching or in educational administration. They generally face no competition for teaching positions in French, although they must compete for administrative positions with doctorates from other fields. Two years after graduation, the earnings of 1986 French doctorates were slightly higher than the average for all other doctorates. The average earnings of their 1982 colleagues, however, increased at a much slower rate than the earnings of all other doctorates between 1984 and 1987. Only a few of these French doctorates changed jobs between the third and fifth years of their careers, usually moving from educational administration into university teaching.

The Course in Retrospect

Doctorates in French were generally happy with their educational choices, as about 85% reported that they would make the same educational decisions again given the opportunity, a significantly higher level of satisfaction than the average for all doctorates. All of these doctorates obtained work that matched their training. While the proportion who believed that they were overqualified for their jobs was about average. Only about eight out of ten, however, expressed satisfaction with their jobs, somewhat below the average. Overall working conditions for these French doctorates remained fairly stable in terms of employment and earnings between the third and fifth years of their careers.

History

Undergraduate
University (3 years)

Humanities

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,885	1,803	2,300	2,387	2,491
% Women Graduates	44.2	45.6	43.3	43.6	44.0
% of Total Graduates at this Level	1.9	1.7	1.9	1.9	1.9

Activity of Graduates	History Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	29	14
Did Not Enter Labour Force	7	5
Part-time Students Already in Labour Force	22	20
Entered Labour Force	42	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	63	19	18
Average for all Fields at this Level	80	10	10

Working Full-time

Managerial and Administrative (22%)
- Sales and Advertising Managers (5%)
- Personnel and Related Managers (4%)
- Service Managers (3%)
- Accountants, Auditors and Other Financial Managers (3%)

Teaching (18%)
- Secondary School (6%)
- Elementary and Kindergarten (5%)
- Community College and Vocational (4%)
- Elementary and Secondary School and Related (1%)

Clerical (17%)
- Ticket and Travel Clerks (4%)
- Bookkeeping and Account Recording Supervisors (3%)

Social Sciences (13%)
- Occupations in Welfare and Community Services (4%)
- Librarians, Archivists and Conservators (4%)

Other (30%)
- Services (11%)
- Artistic and Literary (5%)

History

Undergraduate
University (3 years)

Individuals entering this field may choose from a wide range of periods and countries to study, such as medieval, modern, North American or European history. Admission requirements vary depending on the university, but generally applicants must possess a high school diploma with good grades in English (French), the humanities and social sciences. Quebec students must complete a Diploma of Collegial Studies. Universities in all provinces offer undergraduate degrees in history and a few universities offer diploma or certificate programs that are generally shorter in duration. Normally students can complete these programs in three years. Women accounted for 43% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course among students declined over the 1981-to-1987 period, but has since risen to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 25% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of history students who earn their degrees through part-time study is about average. A greater-than-average proportion, however, continue their education upon graduation, and hence a lower-than-average proportion immediately look for work. Of those who do enter the labour market, a smaller-than-average proportion find a job and a significantly greater-than-average proportion find only part-time work, leading to significantly higher-than-average unemployment rates.

Graduates Who Entered the Labour Force

History graduates find jobs in a broad range of fields, the most popular of which are management and administration (especially in personnel and public relations) and elementary and secondary teaching. For teaching positions, history graduates must also obtain a teaching certificate or education degree, and for management positions they must usually undertake further training on the job or through formal education. History graduates compete with other university graduates in the humanities and education for teaching positions and with community college and university graduates in the social sciences, humanities and especially commerce for management positions. Two years after graduation, 1986 history graduates earned substantially less than the average for all graduates at this level, regardless of occupation. The average earnings of 1982 history graduates, however, grew at a somewhat faster rate between 1984 and 1987 than did the average for all other graduates at this level. Many history graduates who do not initially obtain a job directly related to their education switch jobs between the third and fifth years of their careers, moving mainly from clerical jobs into management positions.

The Course in Retrospect

History graduates were fairly happy with their educational experience, as about 75% of survey respondents reported that they would make the same educational choices again. The proportion of graduates who found work directly related to their training was significantly below average and the proportion who believed themselves to be overqualified for their jobs was substantially above the average. Nonetheless, despite their lower-than-average earnings, the proportion of history graduates who were satisfied with their jobs was about average for all graduates at this level. Moreover, survey results indicate that the situation of history graduates improved in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

History

Master's
University (2 years)

Humanities

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	237	211	242	240	228
% Women Graduates	38.0	38.9	47.1	48.0	47.7
% of Total Graduates at this Level	1.7	1.3	1.4	1.4	1.4

Activity of Graduates	History Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	13	6
Did Not Enter Labour Force	9	6
Part-time Students Already in Labour Force	29	33
Entered Labour Force	49	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	64	23	13
Average for all Fields at this Level	84	9	7

Working Full-time

Social Science (45%)
- Occupations in Social Science (21%)
- Librarians, Archivists and Conservators (9%)
- Library, Archival, Museum Science (5%)
- Economists (5%)

Artistic, Literary and Recreational (14%)
- Writers and Editors (14%)

Teaching (14%)
- Secondary School (8%)
- Post-Secondary (4%)
- University and Related (2%)

Managerial and Administrative (14%)
- Personnel and Industrial Relations (5%)
- Government Administrators (5%)

Other (13%)

History

Master's
University (2 years)

At the graduate level in this field, people specialize in a particular period or culture (e.g., ancient Greece and Rome, medieval Europe, modern Europe, North American history, Asian history or Soviet history. Entry prerequisites vary depending on the university, but in general, applicants must possess a undergraduate honours degree in history or a closely related field. Most universities in Canada, except those in Prince Edward Island, offer master's degrees in history which students can complete within two years. Women represented 47% of 1987 graduates, up from 38% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period and has since remained stable. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

History graduates were slightly less likely-than-average to pursue their degrees on a part-time basis or to enter the labour force, and significantly more likely to continue their education after receiving their degree than other graduates at this level. They also experienced difficulty in the labour market, with an unemployment rate almost twice the average and a very large proportion working only part-time.

Graduates Who Entered the Labour Force

The majority of these graduates find work as historians and social scientists in the educational service industry, while smaller numbers work as librarians, secondary and post-secondary school teachers, writers and editors. Regardless of occupation, 1986 history graduates earned about 25% less than the average for all other master's graduates. Graduates from this field of study generally face job competition from undergraduates with a degree, diploma or certificate in history or geography. While about one-half of 1982 graduates changed jobs between 1984 and 1987, almost all continued in the same line of work. The average salary of these graduates increased at a slightly slower pace over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

In general, history graduates felt happy about their educational experience, with about 80% indicating they would make the same educational choices again. This reflects the fact that a higher proportion than average were satisfied with their current job, although, the proportion who found jobs matching their graduate training was slightly below average. Salaries were also below average, and the proportion of these graduates who felt overqualified for their jobs was slightly above average. This situation changed little over the 1984-to-1987 period.

History

Humanities

Doctorate
University (5 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	39	42	55	61	61
% Women Graduates	23.1	33.3	47.3	48.1	47.9
% of Total Graduates at this Level	2.1	2.2	2.3	2.3	2.3

Activity of Graduates	History Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	33	20
Entered Labour Force	64	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	93	3	4
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching (52%)
- University Teaching (44%)
- University Teaching and Related (8%)

Managerial and Administrative (24%)
- Service Managers (15%)
- Personnel and Related Officers (9%)

Religion (15%)
- Ministers of Religion (15%)

Other (9%)

Humanities

History

Doctorate
University (5 years)

At the doctoral level, history students specialize in a particular period or culture (e.g., ancient Greece or Rome, the Middle Ages, modern Europe, North American history, Asian history, Soviet history). The entry prerequisites vary depending on the university, but all applicants must have a master's degree in history and demonstrate the ability to do historical research. Doctorates in history are awarded at universities in all provinces except Newfoundland, Prince Edward Island, Saskatchewan and British Columbia and can be completed in about five years, sometimes through a CO-OP program combining work and study. Women obtained 47% of all doctorates in 1987, up from 23% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 35% more over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

A higher-than-average share of these history doctorates completed their degrees through part-time study while already in the labour force. Upon graduation, the share who continued with post-doctoral studies was about average for all doctorates. Once in the labour market, history doctorates were very successful finding employment, with a higher-average-proportion working full-time and an unemployment rate somewhat lower than the average for all doctorates.

Graduates Who Entered the Labour Force

History doctorates generally work as university teachers and in related university occupations, and as managers in the service sector, and as personnel and related officers. History doctorates have virtually no competition from doctorates in other fields for university teaching positions, but must compete with university graduates from all fields, especially commerce, and at all levels for management positions. Two years after graduation, history graduates earn somewhat more than the average income for all doctorates. The average earnings of the 1982 doctorates in history, however, grew somewhat slower than the average earnings of all doctorates between 1984 and 1987. Virtually none of these doctorates changed jobs between the third and fifth years of their careers.

The Course in Retrospect

History doctorates were fairly satisfied with their educational experience, as more than 90% reported that they would make the same educational choices again, significantly more than the average for all doctorates. The proportion who found jobs matching their training, however, was somewhat below average, while the proportion who believed that they were overqualified was about average. The proportion who expressed satisfaction with their jobs matched the average for all doctorates. Overall conditions for history doctorates improved in terms of job satisfaction and earnings but deteriorated somewhat in terms of employment between the third and fifth years of their careers.

Library and Records Science

Master's
University (2 years)

Humanities

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	527	516	521	517	491
% Women Graduates	74.2	78.1	75.8	77.2	76.8
% of Total Graduates at this Level	3.7	3.2	3.0	3.0	3.0

Activity of Graduates	Library and Records Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	1	6
Did Not Enter Labour Force	1	6
Part-time Students Already in Labour Force	19	33
Entered Labour Force	79	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	81	11	8
Average for all Fields at this Level	84	9	7

Working Full-time

Social Sciences (82%)

- Librarians, Archivists and Conservators (69%)
- Supervisors: Libraries (10%)

Managerial and Administrative (7%)

- Managers and Administrators (4%)
- Organizational Methods Analysts (2%)

Other (11%)

Library and Records Science

Master's
University (2 years)

Individuals entering this field specialize in medical records science, archive maintenance, museology, art gallery administration and museum curatorship in addition to library science. The entry prerequisites vary depending on the university, but in general, applicants must possess an undergraduate honours degree. Most major universities in Nova Scotia, Quebec, Ontario, Alberta and British Columbia offer master's degrees in this field which students can generally complete within two years, sometimes as part of a CO-OP program combining study and work. Some universities offer graduate diploma and certificate programs which are shorter in duration but still require applicants to possess an undergraduate degree. Women dominate this field, accounting for 76% of total 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course declined significantly over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

A dramatically smaller-than-average number of students in this field pursued their degrees on a part-time basis. These graduates were also much more likely to enter the labour force after graduating, as an insignificant proportion continue their studies for a higher degree. Although these graduates were fairly successful in finding employment, a slightly greater-than-average proportion were only working part-time. The unemployment rate of these graduates was about the same as the average for all graduates at this level.

Graduates Who Entered the Labour Force

The majority of these graduates find work as librarians, archivists, technicians and conservators in educational services, while smaller numbers work as managers and library clerks. Two years after graduating, 1986 graduates earned about 25% less than the average income for all other graduates at this level, regardless of occupation. Graduates from this field of study generally face job competition from community college and university graduates (at the bachelor's and master's levels) in library science or history.

About 70% of 1982 graduates from this field had changed jobs between 1984 and 1987, but only about 20% were employed in different work. Most of these changes involved moving out of librarian, archival and conservator jobs into management positions. The average salary of these graduates increased about as fast over the 1984-to-1987 period as that of other master's graduates.

The Course in Retrospect

These graduates were very satisfied with their educational experience, with about 80% indicating that they would make the same educational choices again. This may reflect the fact that the proportion of graduates who obtained jobs that matched their graduate training was well above average and that the proportion who believed themselves to be overqualified for their jobs was dramatically below average. A slightly smaller-than-average proportion expressed satisfaction with their jobs, however, perhaps a result of slightly below-average salaries. The overall situation of these graduates did not change much over the 1984-to-1987 period.

Linguistics, Translation and Interpretation

Undergraduate
University (3 years)

Humanities

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	724	905	869	886	912
% Women Graduates	80.5	82.2	82.0	82.5	83.2
% of Total Graduates at this Level	0.7	0.8	0.7	0.7	0.7

Activity of Graduates	Linguistics, Translation and Interpretation Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	14
Did Not Enter Labour Force	5	5
Part-time Students Already in Labour Force	35	20
Entered Labour Force	53	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	65	16	19
Average for all Fields at this Level	80	10	10

Working Full-time

Clerical and Related (54%)
- Secretaries and Stenographers (31%)
- Claims Adjusters (10%)
- Travel Clerks, Ticket, Station and Freight Agents (10%)
- Library and File Clerks (3%)

Artistic and Literary (30%)
- Translators and Interpreters (22%)
- Writers and Editors (8%)

Services (10%)
- Food and Beverage Serving Occupations (10%)

Other (6%)
- Teaching (4%)

Linguistics, Translation and Interpretation

Undergraduate
University (3 years)

Individuals entering this field study the analytical, descriptive and historical basis of language. Entry prerequisites vary depending on the university and the program, but in general, applicants must have a high school diploma with good grades in English, French and humanities and social sciences. Quebec students must complete a Diploma of Collegial Studies. Universities in all provinces except Prince Edward Island, Nova Scotia and Manitoba offer undergraduate degree programs in this field, while some institutions (especially those in Quebec) offer diploma or certificate programs that are generally shorter in duration. Students normally complete their degrees within three years. Women dominate this field, accounting for 82% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course has remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A substantially higher-than-average proportion of linguistics and language interpretation students obtained their degrees through part-time study, while the proportion who decided to continue their studies upon graduation was below the average. With so many of these students already working while completing their degrees, the proportion of linguistics graduates looking for work immediately after graduation was below average. The proportion who found a full-time job was significantly smaller than the average for all other graduates and the proportion who found part-time work was significantly higher than average. Their unemployment rate was nearly double the average for all graduates at this level.

Graduates Who Entered the Labour Force

Most graduates in this field find work as translators and interpreters, secretaries, travel clerks, writers and editors in the education or business services sectors or in the federal government. In the job market they face competition from community college and university graduates in French, mass communications, and other humanities and social sciences. Regardless of occupation, these individuals earned substantially less than the average for all graduates. Moreover, the average earnings of 1982 graduates in linguistics and language interpretation grew somewhat more slowly between 1984 and 1987 than did the average earnings of all graduates at this level. Only a few of these graduates changed jobs between the third and fifth years of their careers.

The Course in Retrospect

These graduates appeared somewhat dissatisfied with their educational experience, as only about 60% reported that they would make the same choices again. The proportion who found jobs matching their undergraduate training was also below average, and the proportion who believed themselves to be overqualified for their jobs was significantly above average. Nonetheless, despite low average earnings, the proportion of linguistics graduates who reported that they were satisfied with their current job matched the average for all graduates at this level. Overall conditions for these graduates improved in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Linguistics, Translation and Interpretation

Humanities

Master's
University (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	124	110	138	137	130
% Women Graduates	79.8	68.2	76.8	78.2	77.8
% of Total Graduates at this Level	0.9	0.7	0.8	0.8	0.8

Activity of Graduates	Linguistics, Translation and Interpretation Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	14	6
Did Not Enter Labour Force	6	6
Part-time Students Already in Labour Force	26	33
Entered Labour Force	54	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	55	26	19
Average for all Fields at this Level	84	9	7

Working Full-time

Artistic, Literary and Recreational (36%)
- Translators and Interpretors (36%)

Teaching (31%)
- University and Related (19%)
- Elementary and Kindergarten (12%)

Other (33%)

Humanities

Linguistics, Translation and Interpretation

Master's
University (3 years)

At the master's level in this field, people study theoretical and applied linguistics to understand how language develops and is structured, and how it is used in translation and interpretation. Admission prerequisites vary depending on the university, but in general, applicants must possess an undergraduate honours degree in linguistics or a closely related field of study (e.g., foreign languages). Universities in Newfoundland, Quebec, Ontario, Alberta and British Columbia offer master's degrees in this field which students can generally complete within three years. Some universities offer graduate diploma or certificate programs that are shorter in duration but which still require applicants to have an undergraduate degree for admission. Women make up the majority of graduates, accounting for 77% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course has held fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was over the 1981-to-1987 period.

Activity of Graduates

A slightly smaller proportion of these graduates pursued their degrees on a part-time basis than all other master's graduates. Graduates in this field were more likely than other master's graduates to continue their education after receiving their degree and were equally likely to enter the labour force. However, they were not only less successful than other master's graduates in finding a job (as reflected by a high unemployment rate), but were also less successful in finding full-time employment.

Graduates Who Entered the Labour Force

Most of these graduates find work as translators and interpreters in the business services industry, while smaller numbers work as elementary school and university teachers. Regardless of occupation, 1986 graduates earned about 20% less than the average for other graduates at this level. Graduates in this field of study generally face job competition from undergraduates with a degree, diploma or certificate in linguistics, translation and interpretation.

Although about 70% of 1982 graduates changed jobs between 1984 and 1987, only about 15% were doing different work. Movement was mostly out of teaching into writing and editing. The average salary for these graduates increased at a much slower pace over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

A smaller proportion of linguistics, translation and interpretation graduates (65%) than other master's graduates would select the same educational program if the choice were to be made again. This may reflect the fact that a smaller-than-average number found jobs that matched their educational training, and a greater-than-average number felt overqualified for their job. Despite slightly lower-than-average earnings, they had about the same degree of job satisfaction as other graduates at this level. This situation changed little between the third and fifth years of these graduates' careers, except that employment figures improved.

Mass Communication

Career Program
Community College (2 years)

Humanities

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	968	1,195	1,352	1,311	1,289
% Women Graduates	44.9	48.0	47.2	48.6	53.3
% of Total Graduates at this Level	2.0	2.0	2.3	2.3	2.3

Activity of Graduates	Mass Communication Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	0	7
Entered Labour Force	89	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	3	11
Average for all Fields at this Level	75	12	13

Working Full-time				
Artistic, Literary, Recreational and Related (42%) • Writers and Editors (14%) • Producers and Directors, Performing and Audio-Visual Arts (13%) • Radio & Television Announcers (6%) • Photographers and Camera Operators (4%)	**Clerical (19%)** • Bookkeepers and Accounting Clerks (4%) • Office Machine Operators (4%)	**Sales (11%)** • Salespersons (4%)	**Management and Administration (8%)** • Financial Managers (4%)	**Other (20%)** • Construction Trades (7%) • Teaching (4%)

Mass Communication

Career Program
Community College (2 years)

Individuals entering this field undergo training in cinematography, film production, animation, radio and television broadcasting and journalism. Entry requirements vary by program and institution, but in general, applicants must have completed senior high school English (French) and preferably history, geography and other social sciences. Most colleges require applicants to take diagnostic English (French) tests, pass an interview, present letters of recommendation and provide samples of previous work. Instruction in these programs are offered in all provinces except Nova Scotia and Saskatchewan. Students typically complete their studies within two years, often as part of a CO-OP program combining work and study. Women accounted for 47% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1984 period but has since risen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly smaller-than-average proportion of these graduates continued their education upon graduating, with a larger proportion than average choosing to look for a job instead. None of these students received their diploma/certificate on a part-time basis, implying that full-time classroom participation was essential for success in this course. Not only was a slightly larger-than-average proportion of these graduates (89%) successful in finding employment, but almost all found full-time jobs. Furthermore, unemployment among this group declines over time.

Graduates Who Entered the Labour Force

Most mass communication graduates find employment as writers, editors, producers and directors in the performing and audio-visual arts, while smaller numbers work as radio and television announcers. They generally face job competition from other community college graduates from this course and from university graduates with an undergraduate qualification in mass communication.

Two years after graduation, 1986 graduates were earning about 5% less than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of these graduates increased at a slightly smaller rate than the average. Over the same period, an average proportion (45%) changed jobs, usually moving from positions as producers and directors to management occupations, or from radio and televisions announcers to producers and directors. Of the 1982 mass communication graduates who were writers and editors in 1984, about three-quarters were still writers and editors in 1987.

The Course in Retrospect

The transition from school to work did not appear to be an overly positive experience for these graduates, as indicated by a much smaller proportion than average being satisfied with their current job. This lack of satisfaction probably results from a relatively weak match between field of study and current job, larger numbers feeling overqualified and a less-than-average salary. Only three out of every five 1986 mass communication graduates indicated that they would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates tended to become less enthusiastic about their job, with a larger proportion feeling overqualified and fewer being content with past educational decisions, although a larger proportion in 1987 than in 1984 felt their current job matched their education.

Mass Communication

Humanities

Undergraduate
University (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	752	1,294	1,305	1,329	1,368
% Women Graduates	52.9	57.5	58.6	58.9	59.5
% of Total Graduates at this Level	0.8	1.2	1.1	1.1	1.1

Activity of Graduates	Mass Communication Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	14
Did Not Enter Labour Force	3	5
Part-time Students Already in Labour Force	30	20
Entered Labour Force	60	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	71	4	25
Average for all Fields at this Level	80	10	10

Working Full-time

Artistic and Literary (40%)
- Writers and Editors (17%)
- Producers and Directors, Performing and Audio-Visual Arts (12%)
- Photographers and Camera Operators (7%)
- Radio and Television Announcers (4%)

Managerial and Administrative (18%)
- Sales and Advertising Managers (5%)
- Financial Managers (4%)
- Personnel and Related Managers (4%)

Clerical and Related (13%)
- Cashiers and Tellers (3%)
- Insurance, Bank and Other Financial Clerks (3%)
- Electronic Data Processing Operators (1%)

Sales (8%)
- Commodity Sales Clerks (4%)
- Other Sales (4%)

Other (21%)
- Natural Sciences and Engineering (4%)
- Teaching (4%)
- Services (4%)

Humanities

Mass Communication

Undergraduate
University (3 years)

People entering this field study the methods and history of mass communication including cinematography, film, radio and television broadcasting, and public relations. Entry requirements vary depending on the university, but in general, applicants must complete high school with good grades in English (French) and the social sciences. Quebec students must have a Diploma of Collegial Studies. Many universities require students to provide a portfolio of previous work and undergo an interview before admittance. Major universities in all provinces except Newfoundland, Prince Edward Island, Saskatchewan and Alberta offer degree programs in mass communication, and some institutions (especially those in Quebec) offer diploma or certificate programs that are shorter in duration. Students can typically complete their degrees within three years, sometimes as part of a CO-OP program combining studies with work. Women accounted for 59% of graduates in 1987, up from 53% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period and has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of mass communication students who obtained their degrees through part-time study was substantially higher than the average for all graduates at this level. A smaller-than-average proportion decide to continue their education upon graduating, and an average share enter the labour force.

Those graduates were, however, less successful in finding work than others at this level, recording an unemployment rate two-and-one-half times the average.

Graduates Who Entered the Labour Force

Most mass communication graduates find work as writers, editors, producers, directors, photographers and camera operators in the communications industry, while smaller numbers work as advertising, sales and financial managers. For many of these jobs they compete with community college and university graduates in English, humanities, social sciences and commerce. Two years after graduation, 1986 mass communication graduates earned somewhat less than the average income for all graduates at this level, regardless of occupation. The average earnings of 1982 graduates, however, grew at a significantly faster rate between 1984 and 1987 than that of all other graduates. Many of these graduates changed jobs between the third and fifth years of their careers, moving out of technical jobs into management and administration positions.

The Course in Retrospect

Mass communication graduates appeared somewhat less satisfied than other graduates with their educational experience, with only about 65% reporting that they would make the same educational choices again. Moreover, the proportion who found jobs matching their undergraduate training was slightly below the average for all graduates and the proportion who believed themselves to be overqualified for their jobs was much greater than average. Nonetheless, about 90% reported that they were satisfied with their current jobs. Overall conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Religious and Theological Studies

Humanities

Undergraduate
University (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,300	1,431	1,489	1,525	1,576
% Women Graduates	42.8	48.2	49.7	49.9	50.4
% of Total Graduates at this Level	1.3	1.3	1.2	1.2	1.2

Activity of Graduates	Religious and Theological Studies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	12	14
Did Not Enter Labour Force	2	5
Part-time Students Already in Labour Force	33	20
Entered Labour Force	53	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	83	14	3
Average for all Fields at this Level	80	10	10

Working Full-time

Religion
(44%)
- Ministers of Religion (36%)
- Occupations in Religion (8%)

Teaching
(11%)
- Elementary and Kindergarten Teachers (7%)
- Secondary School Teachers (3%)
- University Teaching and Related Occupations (1%)

Social Sciences
(8%)
- Occupations in Welfare and Community Services (8%)

Other
(37%)
- Services (8%)
- Management and Administration (8%)
- Medicine and Health (5%)

Religious and Theological Studies

Undergraduate
University (3 years)

People entering this field study comparative Eastern and Western religions, canon law, theology, pastoral theology and the history of religion. Admission requirements vary depending on the university and the program, but in general, applicants must complete high school with good grades in the humanities, social sciences and English (French). Quebec students must complete a Diploma of Collegial Studies. Major universities in all provinces except Prince Edward Island offer degree programs in this field and some institutions offer diploma and certificate programs that are generally shorter in duration. Normally students complete their degrees within three years, sometimes as part of a CO-OP program combining work and study on a part-time basis. Women accounted for 50% of graduates in 1987, compared to 43% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A much greater-than-average proportion of theology graduates obtained their degrees through part-time study, and a smaller-than-average proportion continued their studies after graduating. With so many theology students already in the labour force while pursuing their degrees, the proportion looking for work immediately upon graduation was significantly lower than the average for all other graduates. Once in the labour market, these graduates were more successful than others at this level in finding work. The proportion who found full-time jobs and the proportion who found part-time jobs were both greater than average, and consequently, their unemployment rate was much lower than the average.

Graduates Who Entered the Labour Force

Most theology graduates find work as ministers of religion or in related occupations, or as elementary and secondary school teachers. For many of the jobs in religion, theology graduates face little or no competition from university graduates in other fields but must compete with master's graduates in religion. In teaching, theology graduates must obtain an education degree and then compete with other university graduates for available positions (unless a religious degree is required). Two years after graduation, 1986 theology graduates earned somewhat less than the average for all graduates at this level, regardless of occupation. Furthermore, the salaries of 1982 theology graduates grew at a much slower rate between 1984 and 1987 than the average. Only a few theology graduates switched jobs between the third and fifth years of their careers, mainly moving from the ministry into teaching or management and administration.

The Course in Retrospect

Theology graduates appeared to be fairly happy with their educational experience, as a higher-than-average proportion reported that they would make the same educational choices again. The proportion who found jobs matching their undergraduate training, however, was below average, and the proportion who believed themselves to be overqualified for their jobs was slightly above the average for all graduates. Nonetheless, a higher-than-average proportion reported that they were satisfied with their current jobs. Overall conditions for theology graduates improved in terms of employment and earnings between the third and fifth years of their careers but deteriorated somewhat in terms of job satisfaction.

Religious and Theological Studies

Humanities

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	211	400	372	370	351
% Women Graduates	23.2	32.8	33.1	33.7	33.5
% of Total Graduates at this Level	1.5	2.4	2.1	2.1	2.1

Activity of Graduates	Religious and Theological Studies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	6
Did Not Enter Labour Force	9	6
Part-time Students Already in Labour Force	35	33
Entered Labour Force	50	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	10	4
Average for all Fields at this Level	84	9	7

Working Full-time

Religion (55%)	Managerial and Administrative (14%)	Social Sciences (13%)	Other (18%)
• Ministers of Religion (49%) • Other Occupations in Religion (6%)	• Administrators in Teaching (6%)	• Librarians, Archivists and Conservators (5%) • Educational and Vocational Counsellors (4%)	

Religious and Theological Studies

Master's
University (2 years)

At the master's level in this field, individuals study the role of religion in society and the lives of individuals. Students specialize in comparative religions, canon law, pastoral theology, practical theology and systematic theology. Entry requirements vary depending on the institution, but in general, applicants must possess an honours undergraduate degree in religious studies or a closely related field (e.g., sociology or history). The master's degree in religious studies is offered at major universities throughout Canada, except those in Newfoundland, Prince Edward Island and New Brunswick, and can generally be completed within two years, often as part of a CO-OP program combining study with work. Some universities offer graduate diploma or certificate programs that are shorter in duration but which still require applicants to have an undergraduate degree for admission. Women accounted for 33% of 1987 graduates, compared to 23% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose significantly over the 1981-to-1984 period but has since fallen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was over the 1981-to-1987 period.

Activity of Graduates

An average number of religious and theological studies graduates pursued their degrees on a part-time basis, while the proportion who continued their education and the proportion who entered the labour force after graduating were about average. Once in the labour market, religious and theological studies graduates were not only more successful than other master's graduates in finding a job, but were also more successful in finding full-time employment.

Graduates Who Entered the Labour Force

The majority of these graduates find work as ministers of religion, while smaller numbers work in other occupations in religion, administrators in teaching, as librarians or archivists and as educational or vocational counsellors. Regardless of occupation, 1986 religious and theological studies graduates earned about two-thirds of the average for all graduates at this level in 1988. Graduates from this field of study generally face competition from undergraduates with a degree, diploma or certificate in religion or theology. About 65% of 1982 graduates changed jobs between 1984 and 1987, usually moving out of the ministry into educational and vocational counselling. The average salary for these graduates increased at a much slower pace between the second and fifth years of their careers than the average for all other master's graduates.

The Course in Retrospect

Generally, religious and theological studies graduates felt very positive towards their educational experience, with about 80% reporting that they would make the same educational choices again. The proportion who obtained jobs matching their graduate training and the proportion who expressed satisfaction with their jobs were about average, but the proportion who believed themselves to be overqualified for their jobs was slightly above the average. This situation did not change much between the third and fifth years of their careers.

Religious and Theological Studies

Humanities

Doctorate
University (4 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	24	27	47	52	52
% Women Graduates	8.3	48.1	19.1	19.5	19.4
% of Total Graduates at this Level	1.3	1.4	2.0	2.0	2.0

Activity of Graduates	Religious and Theological Studies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	10	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	15	20
Entered Labour Force	75	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	14	0
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching
(38%)
- University Teaching (38%)

Social Sciences
(38%)
- Technicians in Library, Museum and Archival Sciences (38%)

Managerial and Administrative
(24%)
- General Managers and Other Senior Officers (24%)

Religious and Theological Studies

Doctorate
University (4 years)

Individuals studying religion at the doctorate level specialize in comparative religions, canon law, pastoral theology, practical theology and systematic theology. Admission requirements vary depending on the institution, but all applicants must possess a master's degree in religious studies with high standing. Only major universities in Quebec and Ontario award doctorates in religious studies, which students generally complete within four years, often as part of a CO-OP program combining study with work. Women accounted for 19% of all doctorates in 1987.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1984 period and significantly over the 1984-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course over the 1989-to-1995 period will be almost double what it was between 1981 and 1987.

Activity of Graduates

The proportion of people obtaining theology doctorates through part-time study was somewhat smaller than the average for doctorates in all fields. Upon completion of their degree, the proportion of theology doctorates who continued in post-doctoral studies was slightly below the average, although the share who looked for employment upon graduation was the same as the average for all other doctorates. Once in the job market, all of the doctorates in this field found jobs, with about 90% finding full-time employment. This compares favourably with an average rate of unemployment of 5% for all other graduates.

Graduates Who Entered the Labour Force

Doctorates in theology normally find work as ministers of religion, university professors, and general managers in religious organizations and the educational sector. They generally face no competition for jobs in the ministry and in teaching from doctorates in other fields. Two years after graduation, 1986 graduates earned significantly less than the average for all doctorates. The average earnings of 1982 doctorates in religion, however, grew at a much faster rate than the average between 1984 and 1987. Virtually none of the doctorates in this field changed occupations between the third and fifth years of their careers.

The Course in Retrospect

Theology doctorates were generally satisfied with their educational choices, as about three out of four reported that they would make the same educational decisions again, although this was slightly below the average for all doctorates. The proportion who obtained jobs matching their training, however, was substantially below average. Furthermore, a substantially higher-than-average proportion believed that they were overqualified for their jobs, although all reported that they were satisfied with their jobs. The employment figures and earnings of theology doctorates improved between the third and fifth years of their careers, but job satisfaction deteriorated somewhat.

Basic Medical Sciences

Master's
University (2 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	137	179	270	267	254
% Women Graduates	40.9	42.5	48.9	49.8	49.5
% of Total Graduates at this Level	1.0	1.1	1.5	1.5	1.5

Activity of Graduates	Basic Medical Sciences Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	22	6
Did Not Enter Labour Force	14	6
Part-time Students Already in Labour Force	18	33
Entered Labour Force	46	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	78	9	13
Average for all Fields at this Level	84	9	7

Working Full-time

Medicine and Health (28%)
- Physicians and Surgeons (9%)
- Medical Laboratory Technologists and Technicians (5%)
- Nurses (4%)

Teaching (27%)
- University and Related (17%)

Natural Sciences, Engineering and Mathematics (25%)
- Biologists (10%)
- Chemists (5%)
- Life Sciences Technologists and Technicians (5%)

Other (20%)

Basic Medical Sciences

Master's
University (2 years)

People studying basic medical sciences at the graduate level specialize in anatomy, biochemistry, biophysics, embryology, endocrinology, genetics, pharmacology and physiology. The entry requirements vary depending on the institution, but in general, applicants must possess an undergraduate degree in their specialty or a closely related field. Most universities require applicants to have a medical examination, undergo an interview, provide letters of reference and pass graduate admission tests. Master's degree programs in these specialties are offered in all provinces except Prince Edward Island, New Brunswick and Saskatchewan. They are normally finished within two years, sometimes as part of a CO-OP program combining work and study. Graduates are almost evenly divided between the sexes, with women accounting for 49% of 1987 graduates, up from 41% in 1981.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who compete for similar types of jobs. The relative popularity of this course rose slowly but consistently over the 1981-to-1987 period, and under current conditions, it is expected that the number of graduates from this course will be about 40% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly smaller proportion of these graduates pursued their studies part-time when compared to other master's graduates. However, a larger-than-average proportion continued beyond their master's degrees. Not only were they less likely to look for work immediately upon graduation, but also these graduates were rather less successful than average in finding jobs.

Graduates Who Entered the Labour Force

The majority of these graduates obtain work as university teachers, while a smaller number work as biologists or go on to earn an MD degree. Regardless of occupation, 1986 graduates earned about 15% more in 1988 than the average for all master's graduates. Job competition generally comes from people with an undergraduate degree, diploma or certificate in biology or basic medical science.

About one-half of 1982 graduates changed jobs between 1984 and 1987, generally moving out of university teaching and related occupations into other related medical occupations. The average salary of these graduates increased twice as fast over the 1984-to-1987 period as that of other master's graduates.

The Course in Retrospect

A somewhat smaller proportion of these graduates (70%) than other master's graduates would choose the same educational program if the choice had to be made again. Since these graduates have higher-than-average earnings, this may reflect the somewhat smaller-than-average proportion who found work that matched their education, the average proportion who felt satisfied with their current job and the larger-than-average proportion who felt overqualified. This situation changed very little between 1984 and 1987.

Basic Medical Science

Medicine and Health

Doctorate
University (4 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	70	115	137	152	152
% Women Graduates	31.4	37.4	29.2	29.7	29.6
% of Total Graduates at this Level	3.9	6.1	5.7	5.7	5.7

Activity of Graduates	Basic Medical Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	14	3
Did Not Enter Labour Force	5	2
Part-time Students Already in Labour Force	12	20
Entered Labour Force	69	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	92	8	0
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching and Related (40%)
- University Teaching and Related (21%)
- University Teaching (19%)

Medicine and Health (34%)
- Medical Laboratory Technologists and Technicians (22%)
- Physicians and Surgeons (12%)

Natural Sciences (26%)
- Biologists and Related Scientists (10%)
- Physical Sciences Technologists and Technicians (6%)
- Life Sciences Technologists and Technicians (6%)
- Chemists (4%)

Medicine and Health

Basic Medical Science

Doctorate
University (4 years)

People studying medicine at the doctoral level specialize in such fields as anatomy, biochemistry, biophysics, embryology, endocrinology, genetics, pharmacology and physiology. The entry requirements vary depending on the institution, but applicants must possess at least a Master's degree, an M.D., or the equivalent in a special field with high standing. Most universities require their applicants to pass a medical examination, undergo an interview, provide letters of reference and demonstrate their capacity for research. Doctoral programs in these specialties are offered in all provinces except Prince Edward Island, New Brunswick and Saskatchewan. Students normally finish their doctorates within four years, sometimes as part of a CO-OP program combining study with work experience. Men dominate this field with women accounting for 29% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course rose dramatically over the 1981-to-1984 period but has since fallen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 50% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of doctorates in basic medical sciences obtained on a part-time basis was well below the average for all doctorates, suggesting that the difficulty of these programs requires the candidate's full devotion to studies. Often, considerable on-the-job training forms part of the program. The share of these doctorates who pursue post-doctoral research training upon graduating is almost five times the average of all other doctorates, indicating that such studies greatly enhance future career prospects in some specialties. As a result, the proportion of these graduates who look for work immediately upon completing their studies is significantly below the average for all doctorates. Unemployment in this field is virtually zero, with nine out of ten graduates finding full-time jobs, somewhat above the average for all doctorates, and the remainder obtaining part-time work.

Graduates Who Entered the Labour Force

Doctorates in this field generally obtain employment as specialized researchers in medical laboratories or as university teachers and researchers. Many of these doctorates have already obtained an M.D. at an earlier stage in their careers. Normally these graduates face virtually no competition from doctorates in other fields for university teaching positions, but they must compete with other medical professionals and those holding doctorates and sometimes master's degrees in chemistry and biology for the non-university positions. Two years after graduation, the average earnings of 1986 doctorates in basic medical sciences were somewhat lower than the average for all doctorates. Salaries for 1982 graduates in this field, however, increased at a significantly faster rate between 1984 and 1987 than the average of all other doctorates. Only a few of these doctorates changed jobs between the third and fifth years of their careers, generally moving from university teaching and related non-teaching positions into positions as practicing biologists.

The Course in Retrospect

Graduates in this field made a relatively easy transition from the education system into the workforce, with virtually all reporting that they were satisfied with their current jobs. All found jobs matching their education, and the proportion who believed that they were overqualified for their jobs was only about two thirds the average of all other doctorates. Predictably, the share of these doctorates who reported that they would make the same educational choices again, if given the opportunity, was significantly above the average for all other doctorates. Overall working conditions for these doctorates improved significantly in terms of earnings and employment between the third and fifth years of their careers.

Dentistry

Undergraduate
University (4 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	487	490	501	521	544
% Women Graduates	17.0	23.1	31.1	33.3	38.0
% of Total Graduates at this Level	0.5	0.5	0.4	0.4	0.4

Activity of Graduates	Dentistry Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	14
Did Not Enter Labour Force	4	5
Part-time Students Already in Labour Force	0	20
Entered Labour Force	94	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	89	9	2
Average for all Fields at this Level	80	10	10

Working Full-time

Medicine and Health (97%)

- Dentists (87%)
- Dental Hygienists and Dental Assistants (10%)

Teaching (3%)

- University Teaching and Related (3%)

Medicine and Health

Dentistry
Undergraduate
University (4 years)

Individuals entering this field undertake professional training in dental surgery, dental hygiene, oral surgery and orthodontics. Enrollments in dentistry are limited and very high standards are set for entry into this profession. Admission requirements vary depending on the university, but in general, applicants must complete high school (Diploma of Collegial Studies in Quebec) and two years of pre-medicine or pre-dentistry in university with high grades in biology, chemistry, physics and mathematics. Virtually all universities require students to provide letters of recommendation, undergo an interview and pass dental aptitude tests administered by the Canadian Dental Association. Major universities in all provinces except Newfoundland, Prince Edward Island and New Brunswick offer degrees in dentistry, which students generally complete within four years. Women accounted for 31% of all graduates in 1987, compared to 17% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Virtually no graduates in dentistry complete their degrees through part-time study, primarily because of the difficulty of the program. Moreover, only a few dentistry graduates continue with further formal educational studies. More than 90% immediately enter the job market, sharply above the average for all other graduates at this level. Most dentists are self-employed, and thus these graduates are much more successful in finding work than all other graduates on average. Ninety percent find full-time jobs, sharply above the average, and most of the rest obtain part-time work. Consequently, the rate of unemployment for dentistry graduates is only 2%.

Graduates Who Entered the Labour Force

Virtually all graduates in dentistry find jobs in the health sector, primarily as practicing dentists. They compete only among themselves for available dentistry positions. Two years after graduation, 1986 dentistry graduates earned significantly more than the average income for all graduates at this level. Furthermore, the average earnings of 1982 graduates in dentistry grew at a much faster pace over the 1984-to-1987 period than the average. None of these graduates changed occupations between the third and fifth years of their careers.

The Course in Retrospect

Almost all dentistry graduates reported that they were satisfied with their jobs, reflecting the fact that nearly all found jobs matching their undergraduate training and that the proportion who believed themselves to be overqualified for their jobs was sharply below average. They also appeared to be fairly satisfied with their educational experience, as three out of four reported that they would make the same educational choices again. Overall working conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Dentistry

Medicine and Health

Master's
University (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	33	45	47	48	45
% Women Graduates	12.1	20.0	14.9	15.2	15.1
% of Total Graduates at this Level	0.2	0.3	0.3	0.3	0.3

Activity of Graduates	Dentistry Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	17	6
Did Not Enter Labour Force	0	6
Part-time Students Already in Labour Force	16	33
Entered Labour Force	67	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	100	0	0
Average for all Fields at this Level	84	9	7

Working Full-time

Medicine and Health (100%)

- Dentists (68%)
- Physicians and Surgeons (17%)
- Dental Hygienists (15%)

Medicine and Health

Dentistry
Master's
University (3 years)

People in this field at the graduate level specialize in oral biology, oral surgery, orthodontics and periodontics. Admission requirements vary depending on the institution, but in general, applicants must possess an undergraduate degree in dentistry. Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. Master's degree programs in dentistry are offered in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan and can normally be completed within three years, sometimes as part of a CO-OP program combining work and study. Some universities offer graduate diploma or certificate programs that are shorter in duration but which still require the applicant to have an undergraduate degree before admission. Generally, individuals who enter the master's program have completed undergraduate dental degrees and are licensed to practice dentistry. Women accounted for 15% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

A dramatically smaller proportion of dentistry graduates pursued their degrees on a part-time basis compared to all other master's graduates, and a larger proportion than average continued their education after receiving their degrees. These graduates were more likely than others at this level to be looking for a job after graduating, and were also more successful in finding full-time employment.

Graduates Who Entered the Labour Force

The majority of these graduates work as dentists in the health and social service industries, while a smaller number work as physicians and surgeons (doctors of dental surgery). Regardless of occupation, 1986 dentistry graduates earned about 65% more in 1988 than the average for all master's graduates. Graduates from this field of study generally encounter competition for employment from people with an undergraduate degree, diploma or certificate in dentistry.

The Course in Retrospect

A much larger proportion of dentistry graduates (95%) than average would choose the same educational program if the choice had to be made again. This may be a reflection of the higher-than-average earnings of these graduates, since a slightly less-than-average proportion were satisfied with their current job.

This situation remained stable over the 1984-to-1987 period, with the exception that a much higher percentage felt overqualified for their work in 1987 than did in 1984.

Dental Hygiene/Assistant Technologies

Medicine and Health

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(13 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	513	572	556	505
% of Total Graduates at this Level	1.0	1.2	1.2	1.2

Activity of Graduates	Dental Hygiene/ Assistant Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	7
Did Not Enter Labour Force	7	4
Part-time Students Already in Labour Force	0	4
Entered Labour Force	90	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	10	6
Average for all Fields at this Level	74	9	17

Working Full-time

Medicine and Health (88%)	Clerical (6%)	Other (6%)
• Dental Hygienists and Dental Assistants (86%) • Dental Laboratory Technicians (2%)	• Receptionists and Information Clerks (6%)	

Medicine and Health

Dental Hygiene/Assistant Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(13 months)

Students in this field of study undergo training in dental hygiene, dental office assistance and denture therapy. The entry requirements vary depending on the program (pre-employment or skill upgrading), institution and province, although students who have successfully completed high school or the equivalent are preferred. Students generally complete the program in about thirteen months, and can do so in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Ontario.

Graduate Trends and Projections

The number of graduates reflects the future number of persons who will be competing for similar kinds of jobs. The number of graduates rose from 513 in 1984 to 572 in 1987, mirroring an increase in the field's relative popularity. Under current conditions, about the same number of students per year should complete this course as in the past.

Activity of Graduates

A higher-than-average proportion of these graduates entered the labour force after completing their program of study and were very successful in finding full-time jobs. As a result, their unemployment rate was much lower than the average for other trade/vocational graduates.

Graduates Who Entered the Labour Force

The majority of these graduates find work as dental hygienists or dental assistants in the health industry, while smaller numbers take jobs as dental laboratory technicians, receptionists and information clerks in dentists' offices. Two years after graduation, 1986 graduates earned about 5% less than the average for all other graduates at this level, regardless of occupation. Graduates from this field face job competition from community college graduates with a diploma or certificate in dental hygiene as well as undergraduates with a degree in health or dentistry. About 80% of 1982 graduates changed jobs over the 1984-to-1987 period, generally moving among positions as dental hygiene assistants, receptionists and information clerks. The average salary for dental hygiene assistants rose at a slightly slower rate over the 1984 to 1987 period than the average for all graduates at this level.

The Course in Retrospect

A larger-than-average proportion of these graduates (75%) would select the same educational program if the choice had to be made again. Job satisfaction in this field was high, as a much larger-than-average proportion of these graduates found work related to their educational training and a much lower-than-average proportion felt overqualified for their work. Survey results indicate that this situation remained stable over the 1984 to 1987 period.

Dental Hygiene/Assistant Technologies

Medicine and Health

Career Program
Community College (1 year)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	295	360	418	405	399
% Women Graduates	94.6	96.4	96.9	96.4	95.0
% of Total Graduates at this Level	0.6	0.6	0.7	0.7	0.7

Activity of Graduates	Dental Hygiene/Assistant Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	25
Did Not Enter Labour Force	2	3
Part-time Students Already in Labour Force	2	7
Entered Labour Force	94	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	10	8
Average for all Fields at this Level	75	12	13

Working Full-time

Health (93%)	Other (7%)
• Dental Hygienists and Dental Assistants (89%) • Dental Laboratory Technicians (4%)	• Clerical (6%) • Services (1%)

Dental Hygiene/Assistant Technologies

Career Program
Community College (1 year)

People entering this field obtain training in such specialties as denture therapy, dental hygiene, medical/dental technology and dental office management. Entry requirements vary depending on the institution, but in general, applicants must complete senior high school courses in mathematics, biology, chemistry and English (French), and have some proficiency in keyboarding. Most colleges require applicants to undergo an interview, take a manual dexterity test, write a qualifying essay, pass a medical examination and hold a valid cardio-pulmonary resuscitation (CPR) certificate. Applicants for the Dental Hygiene qualification must first obtain a Dental Assistant certificate. These programs are only offered in Quebec, Ontario and Saskatchewan and can typically be completed within one year, sometimes as part of a CO-OP program combining work and study. Women dominate this field, accounting for 97% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A dramatically smaller-than-average proportion of these graduates continued their education upon graduating, with a much larger proportion than average choosing to look for a job instead. This is fairly typical of students in health fields. No students received their diploma/certificate on a part-time basis, implying that full-time school attendance was necessary for this course. Not only were a greater proportion of these graduates (92%) successful in finding a job, but a smaller-than-average proportion were working part-time. Furthermore, as time after graduation increases, unemployment levels decline, with the proportion of these graduates in part-time jobs almost doubling.

Graduates Who Entered the Labour Force

Most of these graduates find employment as dental hygienists and dental assistants in the health and social services industry, while smaller numbers work as receptionists in the same sector. Graduates from this course generally face job competition from trade/vocational graduates in the same course.

Two years after graduation, 1986 graduates were earning about 15% more than other graduates at this level. Between the third and fifth years of their careers, the average salary of dental hygienists and dental assistants increased at about the same rate as the average for other community college graduates. Over this period a much smaller proportion than average (15%) change jobs, usually moving from the dental hygiene and dental assistant occupations, into other health occupations such as dental laboratory technicians and denturists.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a larger proportion than average expressing satisfaction with their current job. This probably results from an almost perfect match between field of study and current job, smaller numbers feeling overqualified and greater-than-average salaries. Surprisingly though, only about three out of five of 1986 dental hygiene/assistant graduates indicated that they would make the same educational decision if the choice had to be made again. Between the third and fifth years of their careers these graduates tended to become disillusioned with their job, with a dramatically larger proportion feeling overqualified for their job, fewer feeling their job matched their training and fewer being content with past educational decisions.

Medical Laboratory Technologies

Medicine and Health

Career Program
Community College (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	948	934	916	888	875
% Women Graduates	88.1	86.4	84.3	83.1	79.7
% of Total Graduates at this Level	1.9	1.6	1.6	1.6	1.6

Activity of Graduates	Medical Laboratory Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	25
Did Not Enter Labour Force	2	3
Part-time Students Already in Labour Force	2	7
Entered Labour Force	91	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	79	17	4
Average for all Fields at this Level	75	12	13

Working Full-time

Health (92%)
- Medical Laboratory Technologists (78%)
- Respiratory Therapists (11%)

Natural Sciences, Engineering and Mathematics (4%)
- Biologists and Related (3%)

Other (4%)
- Services (3%)
- Teaching (1%)

Medical Laboratory Technologies

Career Program
Community College (3 years)

Individuals entering this field obtain training in the basics of clinical chemistry, clinical microbiology, haematology, histo-technology and immuno-haematology. Entry prerequisites vary depending on the institution, but in general, applicants must have completed senior high school courses in mathematics, biology, chemistry, physics and English (French). Most colleges require applicants to undergo an interview, pass a medical examination and write a qualifying essay. Instruction in these technologies are offered in all provinces except Prince Edward Island and generally take three years to complete, sometimes as part of a CO-OP program. Women make up the majority of graduates, accounting for 84% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course declined slightly over the 1981-to-1984 period but has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

A dramatically smaller-than-average proportion of these graduates continued their education upon graduating, while a much larger proportion than average chose to look for a job instead. This is fairly typical for graduates from the health fields. The proportion of students receiving their diploma/certificate on a part-time basis was significantly less than average, implying that full-time attendance was usually necessary to complete this course. Although almost all of these graduates found a job, a greater proportion than average were working only part-time. As the time after graduation increases, those who are not working tend to take part-time work.

Graduates at Work

Most medical laboratory technology graduates find employment as medical laboratory technologists in the health care industry, while smaller numbers work in related para-medical fields. Some medical laboratory technologists are university graduates in such fields as biology, basic medical sciences or other health fields, and chemistry, although they require some additional training.

Two years after graduation, 1986 graduates were earning about 20% more than other graduates at this level. Between the third and fifth years after graduation, the average salary of these graduates increased at a slower rate than the average for other community college graduates. During this period a much smaller-than-average proportion (10%) change jobs, usually moving from medical laboratory work to other health occupations, teaching or community service occupations.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as a much larger proportion of these than other community college graduates expressed satisfaction with their current job. This probably results from almost all finding a job matching their field of study, fewer numbers feeling overqualified and a higher-than-average salary. Four out of every five 1986 medical laboratory technology graduates indicated that they would make the same education decisions if the choice had to be made again. Between the third and fifth years of their careers, more of these graduates felt their job matched their training, and a larger proportion expressed satisfaction with past educational decisions, although a larger proportion did feel overqualified for their job.

Medical and Surgical Specialties

Master's
University (3 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	135	216	213	216	205
% Women Graduates	28.9	47.2	41.8	42.5	42.3
% of Total Graduates at this Level	0.9	1.3	1.2	1.2	1.2

Activity of Graduates	Medical and Surgical Specialties Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	12	6
Did Not Enter Labour Force	6	6
Part-time Students Already in Labour Force	20	33
Entered Labour Force	62	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	81	18	1
Average for all Fields at this Level	84	9	7

Working Full-time

Medicine and Health (87%)
- Physicians and Surgeons (67%)
- Occupational Therapists (5%)
- Medical and Laboratory Technologists (5%)
- Dentists (3%)

Natural Sciences, Engineering and Mathematics (7%)
- Biologists (7%)

Other (6%)

Medical and Surgical Specialties

Master's
University (3 years)

Individuals at the master's level in this field can specialize in cardiology, anesthesiology, dermatology, family medicine, internal medicine, brain surgery, heart surgery, neurosurgery, obstetrics and gynecology, ophthalmology and plastic surgery. Most individuals entering these programs can practice medicine after having completed their undergraduate medical degrees from an accredited medical school, completing one to two years of internship (General Practioner) and passing their medical licensing exams. Enrollment in these programs is limited and entry standards are high. Admission prerequisites vary depending on the institution, but in general, applicants must possess an undergraduate degree in medicine. Most universities require applicants to pass a medical examination, undergo an interview, provide letters of reference and pass graduate medical admission tests. Graduate programs in these specialties are offered in Quebec, Ontario, Alberta and British Columbia, and are normally completed within three years. Most universities offer graduate diploma or certificate programs that are shorter in duration but which still require the applicant to have a medical degree before admission. Men make up the majority of graduates, but women's representation grew from 29% in 1981 to 43% in 1987.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period and has held constant since. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that there will be about 100 more graduates from this course over the 1989-to-1995 period than over the 1981-to-1987 period.

Activity of Graduates

Relative to other master's graduates, a smaller-than-average proportion of graduates in this field pursued their degrees on a part-time basis; however, a larger-than-average proportion continued their education after graduating. Although these graduates were more likely to be looking for a job after receiving their degree than other master's graduates, only an average proportion found a full-time job. Twice the average proportion of these graduates were working part-time, which helped to lower their level of unemployment to almost nil.

Graduates Who Entered the Labour Force

The majority of these graduates work as physicians and surgeons in the health service industry, while a smaller number work as physiotherapists or audio and speech therapists. Regardless of occupation, 1986 graduates earned considerably more in 1988 than the average for all master's graduates. Furthermore, the average salary of 1982 graduates increased four times faster over the 1984-to-1987 period than that of other master's graduates. Generally, graduates from this field of study encounter competition for jobs from people with an undergraduate degree, diploma or certificate in medicine.

The Course in Retrospect

A much larger proportion of medical and surgical specialties graduates (90%) than other master's graduates would select the same educational program if the choice had to be made again. This may reflect their higher-than-average earnings, their success in finding work, their high levels of job satisfaction and the fact that a dramatically smaller proportion than average felt overqualified for their jobs. This situation remained quite stable over the 1984-to-1987 period.

Medicine (M.D.)

Undergraduate
University (4 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,765	1,773	1,776	1,728	1,725
% Women Graduates	33.0	36.8	42.0	44.4	43.0
% of Total Graduates at this Level	1.8	1.6	1.5	1.4	1.3

Activity of Graduates	Medicine Graduates (%)*	All Graduates at this Level (%)
Immediately Continued Education	98	14
Did Not Enter Labour Force	2	5
Part-time Students Already in Labour Force	0	20
Entered Labour Force	98	61

*Percentages do not sum to 100 since graduates in post-M.D. training are *both* working *and* continuing their education.

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	98	0	2
Average for all Fields at this Level	80	10	10

Working Full-time

Medicine and Health (98%)	Other (2%)
• Physicians and Surgeons (98%)	

Medicine and Health

Medicine (M.D.)

Undergraduate
University (4 years)

Individuals entering this field undergo professional training in medicine. Enrollments are limited and entry standards are strict. Admission requirements vary depending on the university, but in general, applicants must complete two years of university with high grades in biology, chemistry, organic chemistry, physics and mathematics. (Quebec students must have a Diploma of Collegial Studies in the health sciences before their two years of university study.) Virtually all universities require that applicants provide letters of recommendation, be interviewed and take the Medical College Admissions Test. Graduates with an M.D. degree may not practice medicine until they are licensed by a provincial regulatory body. Licensing requirements vary with provincial medical regulations and the degree and area of specialization chosen -- the process can take as little as one to two years for general or family medicine or as much as four or five years (or even longer) for such specialties as psychiatry. The M.D. program is offered in all provinces except Prince Edward Island and New Brunswick and takes between three and five years to complete. Women accounted for 42% of all graduates in 1987, up from 33% in 1981.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. As a result of limits on the resources of medical schools and enrollment ceilings imposed by provincial regulatory bodies, the number of M.D.s awarded in Canada has remained stable since 1981. (This includes only those students registered in professional medical programs and does not include graduates completing post-M.D. training.) If enrollments remain close to their current levels, then about 1,725 students are expected to receive their undergraduate qualification (M.D.) in 1995. It should be noted, however, that admission restrictions are expected to be tightened, and this figure could drop.

Activity of Graduates

Since licensing can only be obtained with additional training, virtually all graduates in medicine continue their studies after graduation. Approximately one-half opt for specialty practice, which requires at least four years of additional, intensive hospital-based learning.

Once in the labour force, almost all these graduates find full-time employment, sharply above the average for all other graduates at this level. A smaller-than-average proportion of the remaining graduates work only part-time, primarily by choice.

Graduates Who Entered the Labour Force

Graduates in medicine obtain employment in the health and social services sector as physicians and surgeons, and they compete only among themselves for these positions. Two years after graduation, 1986 graduates in medicine earned significantly more than the average for all other graduates at this level. Furthermore, the average earnings of the 1982 graduates grew at a much faster pace than the average over the 1984-to-1987 period. Only a few graduates in medicine changed occupations between the third and fifth years of their careers, generally moving from practicing medicine into medical or health administration.

The Course in Retrospect

Virtually all graduates reported that they were satisfied with their jobs, partly because of the challenges of their work, their high social standing in the community and their high incomes. Moreover, almost all found jobs matching their undergraduate training, while the proportion who believed themselves to be overqualified for their jobs was sharply below average. Consequently, more than 80% reported that they would make the same educational choices again, significantly higher than the average for all graduates at this level. Overall working conditions for graduates in medicine improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Nursing Aide/Orderly

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(5 months)

Medicine and Health

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	3513	3048	2965	2691
% of Total Graduates at this Level	6.9	6.2	6.2	6.2

Activity of Graduates	Nursing Aide/Orderly Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	7
Did Not Enter Labour Force	5	4
Part-time Students Already in Labour Force	7	4
Entered Labour Force	83	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	58	35	7
Average for all Fields at this Level	74	9	17

Working Full-time

Medicine and Health (86%)	Other (14%)
• Registered Nursing Assistants (39%) • Nursing Attendants (26%) • Registered Nurses (9%) • Nursing Therapy (7%)	

Medicine and Health

Nursing Aide/Orderly

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(5 months)

Individuals entering this field obtain training as health care aides, hospital orderlies, nursing assistants, orderlies and practical nurses. Entrance requirements vary according to the type of program and the institution, but generally, applicants must possess a high school diploma or the equivalent. These programs are offered at the trade/vocational level in all provinces except Quebec, where they are offered at the secondary school level, and generally take about five months to finish. Women dominate this field, accounting for 89% of 1987 graduates.

Graduate Trends and Projections

The number of graduates reflects the future number of persons who will be competing for similar kinds of jobs. Reflecting a fall in the relative popularity of this course, the number of graduates from this field declined from 3,513 in 1984 to 3,048 in 1987. Under current conditions, about 15% fewer students per year should complete this course than in the past.

Activity of Graduates

A slightly larger-than-average proportion of these graduates pursued their studies on a part-time basis, and an average proportion entered the labour force upon completion of their program. While a larger-than-average proportion found work, a much larger-than-average proportion found only part-time work.

Graduates Who Entered the Labour Force

Most of these graduates find jobs as registered nursing assistants, while smaller numbers work as nursing attendants and orderlies. Regardless of occupation, 1986 graduates earned about 15% less than the average for all other graduates at this level in 1988. In general, graduates from this field of study face job competition from community college graduates with a diploma or certificate in nursing. About 75% of 1982 graduates changed jobs between 1984 and 1987, mostly leaving positions as registered nursing assistants for jobs as registered nurses and nursing attendants. The average salary of these graduates increased much more slowly than the average for other graduates at this level over the 1984-to-1987 period.

The Course in Retrospect

An above-average proportion of these graduates (70%) would select the same educational program if the choice had to be made again. This may reflect the fact that a much higher-than-average proportion of these graduates found work related to their educational training, a lower-than-average proportion felt overqualified for their work and a larger-than-average proportion were satisfied with their current jobs.

Nursing

Career Program
Community College (3 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	6,452	6,748	6,952	6,740	6,629
% Women Graduates	95.5	94.3	92.7	91.1	86.6
% of Total Graduates at this Level	13.3	11.4	11.9	11.9	11.9

Activity of Graduates	Nursing Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	1	7
Entered Labour Force	92	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	15	3
Average for all Fields at this Level	75	12	13

Working Full-time

Health Occupations (100%)
- Nurses (99%)
- Nursing Supervisors (1%)

Nursing

Career Program
Community College (3 years)

Students entering this field of study can obtain a diploma in nursing leading to qualification as a registered nurse, or a diploma in nursing technology. The entrance requirements vary depending upon the institution and the province, but normally, applicants must finish high school with good marks in English (French), biology, chemistry and mathematics. In addition, they must undergo a medical examination and an interview, provide letters of reference and possess a valid standard first aid certificate. Nursing programs are offered at community colleges or at hospital schools of nursing in all provinces and generally last two or three years. All of these programs involve on-the-job training. Women accounted for 93% of the 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period but has since risen. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course over the 1989-to-1995 period will be the same as there were over the 1981-to-1987 period. Actual graduation levels will depend upon the outcome of a current re-evaluation of formal educational requirements for nurses and a move within the profession to favour university graduates.

Activity of Graduates

A dramatically larger-than-average proportion of nursing graduates choose to look for a job immediately after graduation, and although they are significantly more successful than other community college graduates in finding employment, a larger-than-average proportion work only part-time. Upon graduation only about 6% of all nursing graduates immediately continue their formal educational training.

Graduates Who Entered the Labour Force

Almost all of these graduates find work as nurses in the health and social service industry. Two years after graduation, 1986 nursing graduates earned about 25% more than the average for all community college graduates, regardless of occupation. Graduates from this field of study generally face job competition from nursing graduates at the university level. Only about 10% of 1982 graduates had changed jobs by 1987, generally moving out of nursing into supervision, medical administration and teaching. The average salary of these graduates increased more slowly over the 1984-to-1987 period than that of other community college graduates.

The Course in Retrospect

A smaller proportion of nursing graduates (60%) than other community college graduates would select the same educational program if the choice had to be made again. This seems peculiar in light of the almost negligible unemployment rate and greater-than-average salaries in this field, but could be explained by the difficult working conditions and emotional stress these graduates encounter in their careers and by the fact that their salaries are low compared to those of other health professionals.

Nursing

Undergraduate
University (4-5 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,784	2,885	3,638	3,707	3,818
% Women Graduates	95.0	96.5	95.4	95.9	96.8
% of Total Graduates at this Level	1.8	2.7	3.0	3.0	3.0

Activity of Graduates	Nursing Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	14
Did Not Enter Labour Force	2	5
Part-time Students Already in Labour Force	29	20
Entered Labour Force	66	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part time (%)	Unemployed (%)
This Field Only	80	17	3
Average for all Fields at this Level	80	10	10

Working Full-time

Medicine and Health Occupations (90%)
- Nurses: Registered Graduate and Nurses in Training (81%)
- Supervisors: Nursing, Therapy and Related Assisting Occupations (6%)
- Nursing Attendants (2%)

Social Sciences (4%)
- Educational and Vocational Counsellors (2%)
- Social Workers (1%)

Teaching and Related (3%)
- Post-Secondary Teachers (2%)
- Teachers of Exceptional Students (1%)

Other (3%)

Nursing

Undergraduate
University (4-5 years)

At the university level, individuals entering this field study nursing intensively, covering such subjects as community health nursing, intensive care nursing, obstetrical nursing and psychiatric nursing. Admission requirements vary depending on the university, but in general, applicants must have a high school diploma (Diploma of Collegial Studies in Quebec) with above-average standing in mathematics, chemistry, biology, physics and English (French). Enrollment in nursing at many universities is limited and the prospective student may be required to undergo medical tests and an interview and provide a letter of reference. At some universities, a nursing degree can be obtained as part of a CO-OP program combining work and study. Universities in all provinces offer degree or diploma programs which students generally complete within four to five years. Registered nurses with training at the community college level and other practicing nurses can normally enter accelerated nursing programs to upgrade their skills. Such programs are available at most universities. Women accounted for 96% of all nursing degrees or diplomas awarded in 1987.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. The popularity of the nursing program has increased through the 1980s, as the number of nursing graduates rose from 1,784 in 1981 to 3,638 in 1987. A large proportion of the people in these programs were practicing nurses who were upgrading their skills and knowledge, reflecting a strong movement within the nursing field to upgrade qualifications to the university degree level. Under current conditions, it is expected that the number of graduates from this course will be about 35% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The share of nursing students who were already employed and who completed their degrees through part-time study was somewhat above the average of all graduates at this level. Only a few of these nursing graduates continued their education upon graduating, suggesting that further training does little to enhance career prospects in a job market where demand for nurses is already high and where nurses are in extremely short supply in many areas. Upon completion of their studies, graduates in nursing were somewhat more apt to be looking for employment than other graduates at this level. Once in the labour market, they were generally more successful finding work in their field than other graduates, with 80% finding full-time jobs and most of the rest obtaining part-time work. Consequently, the rate of unemployment for nursing graduates (3%) was significantly lower than that for all graduates.

Graduates Who Entered the Labour Force

Most graduates in nursing find employment as registered nurses or nursing supervisors in the health and social services sector. In the job market, they compete with university graduates in commerce and related special administration programs for the positions of health supervisors and with community college graduates for the positions of registered nurses and nursing attendants. Two years after graduation, 1986 graduates earned slightly more than the average income for all graduates at this level, regardless of occupation. The average earnings of 1982 graduates in nursing, however, grew at a dramatically slower pace over the 1984-to-1987 period than the average earnings of all graduates at this level. A large number of these graduates changed occupations between the third and fifth years of their careers, moving out of nursing and into teaching, social work, or management and administration. This was partly due to the high levels of stress in nursing and the slow income growth.

The Course in Retrospect

Nursing graduates appeared to be fairly satisfied with their educational experience, as seven out of ten reported that they would make the same educational choices again, slightly above the average for all graduates. Moreover, the share who found jobs matching their undergraduate training was significantly above average, reflecting the strong demand for nurses and their occupationally specific training. The proportion of nurses who believed themselves to be overqualified for their jobs, however, was sharply higher than average for all graduates at this level. Nonetheless, nine out of ten nursing graduates reported that they were satisfied with their jobs. Overall working conditions for graduates in nursing remained relatively stable in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Nursing

Master's
University (2 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	96	78	164	162	154
% Women Graduates	95.8	97.4	98.2	99.4	99.4
% of Total Graduates at this Level	0.7	0.5	0.9	0.9	0.9

Activity of Graduates	Nursing Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	6
Did Not Enter Labour Force	2	6
Part-time Students Already in Labour Force	25	33
Entered Labour Force	69	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	90	9	1
Average for all Fields at this Level	84	9	7

Working Full-time

Medicine and Health (49%)
- Nurses (42%)
- Nursing Supervisors (3%)

Teaching (31%)
- University (12%)
- Post-Secondary School (8%)
- Instructors Training Officers (4%)

Managerial and Administrative (20%)
- Administrators in Medicine and Health (13%)
- General Managers (7%)

Medicine and Health

Nursing

Master's
University (2 years)

At the graduate level, nurses specialize in such programs as geriatric nursing, medical/surgical nursing, intensive care unit/emergency nursing, obstetric nursing, pediatric nursing, psychiatric nursing and public health nursing. Entry requirements vary by institution, but in general, graduate nurses must have an undergraduate nursing degree or the equivalent with a high average standing in completed nursing courses. Most universities require applicants to undergo an interview and provide letters of reference. Major universities in all provinces except Prince Edward Island and New Brunswick offer the graduate program in nursing, which students typically complete within two years. Women accounted for 98% of all master's degrees in nursing in 1987.

Graduate Trends and Projections

The relative popularity of this course declined slightly over the 1981-to-1984 period but has since risen to exceed its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that there will be about 300 more graduates from this course over the 1989-to-1995 period than there were over the 1981-to-1987 period.

Activity of Graduates

Comparatively few nursing graduates pursued their degrees on a part-time basis or continued their education after receiving their master's degree. This is not surprising, since higher level programs are offered only in Alberta. Not only were nursing graduates more apt to look for employment immediately upon graduation than other master's graduates, but they were also more successful in finding it — a larger-than-average proportion found full-time work and almost none were unemployed.

Graduates Who Entered the Labour Force

The majority of these graduates obtain work as nurses in the health service industry, while a smaller number work as university teachers and administrators in medicine and health. Regardless of occupation, 1986 nursing graduates earned less in 1988 than the average for all master's graduates. Graduates from this field of study generally face competition for jobs from undergraduates with a degree, diploma or certificate in nursing.

About 60% of 1982 graduates changed jobs between 1984 and 1987, generally moving out of university teaching and into administration in medicine and health and general management. Their average salary increased much more slowly over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

A smaller proportion of nursing graduates (65%) than other master's graduates would select the same educational program if the choice had to be made again. This probably reflects their lower-than-average earnings and their stressful working conditions, since a much smaller proportion than average felt overqualified for their jobs and a larger-than-average proportion felt their job matched their education. This situation remained relatively stable over the 1984-to-1987 period.

Other Nursing

Medicine and Health

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(6 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	228	332	323	293
% of Total Graduates at this Level	0.45	0.67	0.67	0.67

Activity of Graduates	Other Nursing Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	7
Did Not Enter Labour Force	4	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	94	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	46	51	3
Average for all Fields at this Level	74	9	17

Working Full-time

Medicine and Health (79%)
- Registered Nurses (44%)
- Registered Nursing Assistants (22%)
- Nursing Attendants (6%)
- Nursing Supervisors (5%)

Clerical and Related (10%)
- Secretaries and Stenographers (10%)

Teaching (6%)
- Teachers of Exceptional Students (4%)

Other (5%)

Medicine and Health

Other Nursing

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(6 months)

Individuals entering this field undergo specialized training in such areas as psychiatric or mental health nursing, public health nursing and dental nursing. The minimum entry requirements vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most graduates possess some college education before enrolling, although this may not be essential. These programs are offered in Quebec, Saskatchewan and British Columbia, and can be completed in about six months.

Graduate Trends and Projections

The number of graduates is a reflection of the future number of people who will be competing for similar kinds of work. Reflecting a rise in the relative popularity of this field of study, the number of graduates increased from 228 in 1984 to 332 in 1987. Under current conditions, about 10% fewer people will graduate from these courses than did between 1984 and 1987.

Activity of Graduates

A lower-than-average proportion of these graduates pursued their program on a part-time basis, and none continued their education after graduation. Consequently, a much larger-than-average proportion entered the labour force. While unemployment for this group was low, more than 50% of these graduates were only working part-time.

Graduates Who Entered the Labour Force

Since many of these graduates are registered nurses taking refresher courses or specializing in a subfield, it is not surprising that the majority work as registered nurses in the health service industry. Smaller numbers work as registered nursing assistants, nursing attendants and nursing supervisors. Regardless of occupation, 1986 graduates earned about the same average salary as other graduates at this level. Graduates from this course generally face job competition from community college and university graduates at the bachelor's and master's levels in nursing or specialized nursing. About 70% of these graduates changed jobs over the 1984-to-1987 period, mostly leaving positions as nursing attendants for jobs as registered nursing assistants. The average salary of 1982 graduates from this field increased more slowly over the 1984-to-1987 period than the average for other graduates at this level.

The Course in Retrospect

A larger-than-average proportion of these nursing graduates (80%) would choose the same program if the choice had to be made again. This may reflect the fact that a larger-than-average proportion found work related to their training, that a much lower-than-average proportion felt overqualified for their jobs and that an approximately average proportion felt satisfied with their work. This situation remained stable over the 1984-to-1987 period, with the exceptions that a higher percentage were employed and fewer felt overqualified in 1987 than in 1984.

Other Nursing

Medicine and Health

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	285	447	569	552	543
% Women Graduates	95.4	91.3	89.6	86.5	77.8
% of Total Graduates at this Level	0.6	0.8	1.0	1.0	1.0

Activity of Graduates	Other Nursing Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	8	7
Entered Labour Force	84	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	16	2
Average for all Fields at this Level	75	12	13

Working Full-time

Health
(94%)

- Nursing (78%)
- Nursing Assistants (7%)
- Nursing Aides and Orderlies (4%)
- Nursing Supervisors (3%)

Other
(6%)

- Management and Administration (2%)
- Teaching (2%)
- Services (1%)
- Social Sciences and Related (1%)

Other Nursing

Career Program
Community College (2 years)

Students in this field obtain training as nurses aides and orderlies, registered nursing assistants, and psychiatric and mental health nurses, in public health, dental, or other specialized nursing fields. Entry requirements vary depending upon the program, institution and province, but generally, applicants must undergo an interview and a medical examination, provide a letter of reference and complete high school with courses in English (French), mathematics, biology and chemistry. In addition, candidates must often pass diagnostic English (French) and mathematics tests, and hold a valid standard first aid certificate. In the case of more specialized programs, applicants must already be registered nurses. These programs are offered in all provinces except Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick and can generally be completed in two years, sometimes as part of a CO-OP program. Women dominate this field, accounting for 90% of all graduates in 1987, down from 95% in 1981. The average age of these graduates (27) was significantly higher than that of other community college graduates (23) and other community college nursing graduates (24).

Graduate Trends and Projections

The relative popularity of this course rose continuously over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A dramatically smaller-than-average proportion of these graduates continued their education, with a much larger proportion than average choosing to look for a job instead. This is fairly typical of graduates from health fields of study. An average proportion received their diploma or certificate on a part-time basis. Although almost all of these graduates (98%) were successful in finding a job, a greater proportion than other community college graduates were working only part-time.

Graduates Who Entered the Labour Force

Most of these graduates find employment as nurses in the health and social services industry, while smaller numbers work as nursing assistants, nursing aides and orderlies. Graduates from this course generally face job competition from nursing graduates with an undergraduate qualification in nursing.

Two years after graduation, 1986 graduates were earning about 25% more than other graduates at this level. Furthermore, as time after graduation increases, the proportion of these graduates working part-time generally increases, and as a result average salaries grow only about half as fast as those of other community college graduates. Between the third and fifth years of their careers, a much smaller-than-average proportion (10%) change jobs, usually moving from nursing to nursing supervision or from nursing supervision to administrator in medicine and health.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a greater proportion than average expressing satisfaction with their current job. This probably results from a strong match between field of study and current job, dramatically fewer-than-average graduates feeling overqualified and a greater-than-average salary. Two out of every three graduates stated that they would make the same educational choice if the decision had to be made again. Between the third and fifth years of their careers, fewer graduates felt satisfied with their job, fewer would select the same education field and more felt overqualified for their job.

Other Health

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	324	538	554	537	528
% Women Graduates	79.6	77.5	82.9	91.1	100.0
% of Total Graduates at this Level	0.7	0.9	0.9	0.9	0.9

Activity of Graduates	Other Health Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	54	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	6	7
Entered Labour Force	36	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	59	16	25
Average for all Fields at this Level	75	12	13

Working Full-time

Medicine and Health (25%)
- Nurses (6%)
- Nursing Attendants (5%)

Natural Sciences, Engineering and Mathematics (18%)
- Life Sciences Technologists and Technicians (6%)
- Systems Analysts (5%)
- Biologists (5%)

Services (15%)
- Protective Services (5%)
- Food and Beverage Preparation and Related (4%)

Social Sciences and Services (11%)
- Social Workers (5%)

Other (31%)
- Management and Administration (6%)
- Clerical (6%)
- Product Fabricating (6%)
- Construction Trades (6%)

Other Health

Career Program
Community College (2 years)

Individuals entering this field obtain training in such specialties as health care support (hospital porter, operating room technician), biological science (biological laboratory technician, biomedical engineering), public/environmental health (public health inspector) and health education. Entry requirements vary depending on the program and the institution, but in general, applicants must complete senior high school courses in mathematics, chemistry, biology, physics and English (French). Most colleges require applicants to undergo an interview and pass a medical examination. Community colleges in all provinces except Newfoundland, Prince Edward Island and New Brunswick offer instruction in these health programs. Students typically complete their studies within two years, sometimes as part of a CO-OP program. Women make up the majority of graduates, accounting for 83% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period and has held constant since then. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

More than double the average proportion of these graduates continued their education immediately upon graduation, and consequently a much smaller proportion than average chose to look for a job. The proportion of students receiving their diploma or certificate on a part-time basis approximated the average. Unemployment among these graduates was very high, and a much larger proportion than average were working only part-time. Unemployment levels decline slightly over time, however, due to increased in part-time employment.

Graduates Who Entered the Labour Force

Perhaps as a reflection of the poor employment prospects at the time of graduation, a larger number of graduates immediately continue their education. Further, because of the varied courses included in this field of study a lot of these new labour market entrants find jobs which are not directly related to their education. Most of these graduates work as life science technologists or technicians or as nursing attendants in the health and social service industries. A large proportion accept unrelated employment, however, in anticipation of finding related employment at a later date; they generally work as receptionists, systems analysts, teachers of exceptional students or in the service sector.

A fairly large proportion of these graduates are individuals upgrading their skills (e.g., nurses). Graduates from this course seeking to be life science technologists or technicians generally face job competition from other community college graduates in this field, agriculture or forestry, or from university graduates with an undergraduate qualification in biology or forestry.

Two years after graduation, 1986 graduates were earning about the same salary as others at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of these graduates increased at a rate dramatically slower than the average for other community college graduates. Over the same period a smaller-than-average proportion change jobs, usually moving from unrelated jobs such as receptionists to positions as nursing attendants or life science technologists or technicians, or from related occupations to management and administration.

The Course in Retrospect

The transition from school to work appeared to be a relatively positive experience for these graduates, as indicated by a larger-than-average proportion being satisfied with their current job. This contrasts with a relatively weak match between field of study and current job, larger-than-average numbers feeling overqualified and only an average salary. Seventy per cent indicated that they would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers, the proportion feeling overqualified for their job grew, and the proportions feeling their job matched their training or who were content with their past educational decisions declined; nonetheless, job satisfaction was much higher in 1987 than in 1984.

Other Health

Undergraduate
University (2 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	504	558	782	780	790
% Women Graduates	67.7	65.4	64.5	64.8	65.4
% of Total Graduates at this Level	0.5	0.5	0.7	0.6	0.6

Activity of Graduates	Other Health Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	1	14
Did Not Enter Labour Force	3	5
Part-time Students Already in Labour Force	63	20
Entered Labour Force	33	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	72	24	4
Average for all Fields at this Level	80	10	10

Working Full-time

Medicine and Health (60%)
- Nursing (20%)
- Dental Hygienists & Dental Assistants (14%)
- Optometrists (7%)
- Medical Laboratory Technologists & Technicians (7%)
- Dispensing Opticians (5%)
- Supervisors: Nursing and Therapy (3%)

Managerial and Administrative (13%)
- Accountants, Auditors and Other Financial Officers (7%)
- Government Inspectors and Regulatory Officers (2%)

Clerical and Related (9%)
- Secretaries and Stenographers (4%)
- Bookkeepers and Accounting Clerks (3%)

Other (18%)
- Construction Trades (7%)
- Social Sciences (5%)
- Teaching (5%)

Other Health

Undergraduate
University (2 years)

Individuals entering this field undergo training in a wide variety of health specialties ranging from dental hygiene to more specialized medical sciences, including microbiology, optometry, immunology, social and preventive medicine, and medical laboratory science. Enrollment in these programs is limited and the admission standards are extremely high. The entry requirements vary depending on the university and the program. Some programs, such as optometry, require applicants to complete two years of university with high grades, while other specialties may require applicants to possess a high school diploma (Quebec students must possess a Diploma of Collegial Studies) or even an undergraduate science degree with above average standing. Virtually all universities require applicants to provide letters of recommendation, to be interviewed and to complete aptitude tests. All major universities in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan offer degree programs in these health specialties. Students generally complete these programs in two years, sometimes as part of a CO-OP program combining formal studies with on the job training. The program length can vary, however, with some, such as optometry, taking up to five years. Women make up the majority of graduates, accounting for 65% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course remained relatively constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 25% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The majority of students in this field, (more than three times the average), complete their degrees through part-time study, suggesting that many use this program to upgrade their job skills to compete more effectively in today's job market. Virtually none continue with their formal studies upon graduating, a figure sharply below the average. As a result, these graduates are much less likely to be looking for first-time jobs upon completion of their programs. Those who do seek employment upon graduation are more successful in finding employment than other graduates, although only about seven out of ten find full-time jobs, a figure that is somewhat lower than the average. Many of the remaining graduates find part-time work, and consequently the rate of unemployment in this field is somewhat less than one-half the average.

Graduates Who Entered the Labour Force

Most graduates of these programs obtain employment in the health and social services sector as specialized nurses, dental hygienists, medical laboratory technologists/technicians, optometrists, dispensing opticians and nursing supervisors. When looking for work, they compete among themselves as well as with community college and university graduates in the various medical fields, such as dental hygiene and nursing. Two years after graduation, 1986 graduates earned somewhat more than the average income for all graduates at this level, regardless of occupation. The average earnings of 1982 graduates grew at a much faster rate than the average between 1984 and 1987, although it should be noted that the range of earnings in this field is very wide. Few of these graduates change occupations between the third and fifth years of their careers.

The Course in Retrospect

Almost 90% of graduates in this field reported that they were satisfied with their current jobs, about the same as the average for all graduates. The share of these graduates who found jobs matching their undergraduate training was about average, although the proportion who believed themselves to be overqualified was sharply above average. These graduates appeared fairly satisfied with their educational experience, as about 70% reported that they would make the same educational choices again. Furthermore, survey results show that overall working conditions improved somewhat in terms of employment and job satisfaction and showed strong growth in earnings between the third and fifth years of their careers.

Other Health

Master's
University (2 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	198	268	335	335	318
% Women Graduates	49.5	57.5	61.5	62.6	62.3
% of Total Graduates at this Level	1.4	1.6	1.9	1.9	1.9

Activity of Graduates	Other Health Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	10	6
Did Not Enter Labour Force	7	6
Part-time Students Already in Labour Force	23	33
Entered Labour Force	60	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	87	7	6
Average for all Fields at this Level	84	9	7

Working Full-time

Medicine and Health (53%)
- Audio and Speech Therapists (18%)
- Physicians and Surgeons (13%)
- Nurses (6%)
- Physiotherapists (4%)
- Occupational Therapists (2%)

Natural Sciences, Engineering and Mathematics (15%)
- Biologists (9%)
- Chemists (4%)

Managerial and Administrative (14%)
- Administrators in Teaching (8%)
- Administrators in Medicine and Health (2%)
- Government Administrators (2%)

Other (18%)

Medicine and Health

Other Health

Master's
University (2 years)

People entering Master's programs in this field specialize in microbiology, immunology, pathology, optometry, community medicine and hygiene, public health, preventive medicine, medical laboratory and science, and radiological technology. Enrollments are limited and admission standards are high. The entry prerequisites vary depending on the institution, but generally applicants must possess an undergraduate degree in a closely related field. Most universities require applicants to pass a medical examination, undergo an interview, provide letters of reference as well as possess the required undergraduate certification. Master's degree programs in these fields are offered in all provinces except for Newfoundland, Prince Edward Island and New Brunswick, and are normally completed within two years, sometimes as part of a CO-OP program combining work and study. Most universities offer graduate diploma or certificate programs that are shorter in duration but which still require applicants to have an undergraduate degree. Women accounted for 62% of all 1987 graduates, compared to 50% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students rose continuously over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A much smaller-than-average proportion of these graduates pursued their degrees on a part-time basis. Further, a larger proportion of these graduates continued their education after receiving their degrees. Not only were other health graduates more apt to enter the labour market upon graduation than other master's graduates, but they were also slightly more successful in finding a full-time job. These graduates were also slightly less likely to be working part-time or to be unemployed relative to other graduates at this level.

Graduates Who Entered the Labour Force

Many of these graduates obtain work as audiologists and speech-language pathologists in the medicine and health related industry, while smaller numbers work as doctors (after having obtained their M.D.), nurses or physiotherapists. Two years after graduation, 1986 graduates in this field earned about 15% more than average for all graduates at this level, regardless of occupation. Average earnings for 1982 graduates increased faster between 1984 and 1987 than for other graduates at this level, and about 75% of these graduates changed jobs between the third and fifth years of their career; movements were generally out of medical and health administration and into management, social work and related occupations. Graduates from this field compete for jobs with other master's graduates with training in rehabilitation medicine and undergraduates with qualifications in related fields of study.

The Course in Retrospect

These graduates felt very positive towards their educational experience, with about 80% indicating they would choose the same educational program again. Job satisfaction for these graduates was high, with a greater-than-average proportion finding jobs that matched their education, a smaller-than-average proportion feeling overqualified for their jobs and salaries higher than average. Further survey results indicate that employment and earnings improve for these graduates between the third and fifth years of their career.

Pharmacy

Undergraduate
University (4 years)

Medicine and Health

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	646	654	691	718	751
% Women Graduates	65.5	62.5	66.4	66.8	67.4
% of Total Graduates at this Level	0.6	0.6	0.6	0.6	0.6

Activity of Graduates	Pharmacy Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	13	14
Did Not Enter Labour Force	1	5
Part-time Students Already in Labour Force	1	20
Entered Labour Force	85	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	94	5	1
Average for all Fields at this Level	80	10	10

Working Full-time

Medicine and Health (86%)	Sales (6%)	Managerial and Administrative (6%)	Other (2%)
• Pharmacists (86%)	• Technical Sales (3%) • Commercial Travellers (3%)	• Sales Managers (4%) • Administrators in Medicine and Health (2%)	

Medicine and Health

Pharmacy

Undergraduate
University (4 years)

Individuals entering this field undertake professional training in various branches of pharmacy, such as community retail, hospital and industrial pharmacy. Enrollments are limited and admission standards are high. Applicants must complete high school and one year of university pre-science with good grades in chemistry, biology, physics and mathematics. Quebec students must have a Diploma of Collegial Studies. Most universities require applicants to provide letters of recommendation, to pass the Pharmacy College Admission Test and to undergo an interview. Major universities in all provinces except Prince Edward Island and New Brunswick offer pharmacy programs which students normally can complete within four years, sometimes as part of a CO-OP program combining study and work. Women make up the majority of graduates, accounting for 66% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course among students has remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who will be competing for similar types of jobs. Under current conditions, the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

Virtually no pharmacy graduates completed their degrees through part-time study, a sharp divergence from the norm which suggests that pharmacy students must devote most of their time to study to succeed in this program. The share of these graduates who decide to continue their formal studies upon graduating was about average, suggesting that further education enhances career prospects. Pharmacy graduates are very successful in the labour market, with more than 90% of the 1986 graduates now working full-time. Many of the remaining pharmacy graduates find part-time work either out of necessity or choice. The rate of unemployment for pharmacy graduates was less than one half the average for all graduates at this level, reflecting a current shortage of pharmacists in Canada.

Graduates Who Entered the Labour Force

Most graduates in pharmacy find employment in the health and social services sector and in the retail drug industry as self-employed pharmacists, but a few obtain work as health sector administrators, university teachers, and managers, salespersons and researchers in the pharmaceutical industry. Pharmacy graduates compete among themselves for pharmacist positions and with other university graduates (especially those in commerce) for sales positions. Two years after graduation, 1986 pharmacy graduates earned significantly more than the average income for all graduates at this level, regardless of occupation. The average earnings of 1982 graduates, however, grew at a somewhat slower rate than the average between 1984 and 1987. Many of these graduates change jobs between the third and fifth years of their careers, moving from pharmacy to sales management or from sales positions into pharmacy.

The Course in Retrospect

All of the graduates in pharmacy reported that they were satisfied with their jobs, reflecting their relatively high earnings and the fact that all found jobs matching their undergraduate training. The proportion who believe themselves to be overqualified for their jobs was also sharply below average for all graduates at this level. Nine out of ten of these graduates reported that they would make the same educational choices again, sharply above the average for all graduates at this level. Overall working conditions for pharmacy graduates even improved in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Rehabilitation Medicine

Medicine and Health

Undergraduate
University (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	849	857	938	1,023	1,065
% Women Graduates	89.6	90.7	85.9	86.4	87.2
% of Total Graduates at this Level	0.9	0.8	0.8	0.8	0.8

Activity of Graduates	Rehabilitation Medicine Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	14
Did Not Enter Labour Force	1	5
Part-time Students Already in Labour Force	7	20
Entered Labour Force	84	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	89	7	4
Average for all Fields at this Level	80	10	10

Working Full-time

Medicine and Health (100%)

- Physiotherapists (71%)
- Occupational Therapists (24%)
- Audio and Speech Therapists (3%)

Rehabilitation Medicine

Undergraduate
University (3 years)

Rehabilitation medicine includes occupational therapy, physiotherapy, speech pathology and audiology. Enrollments are limited and entry standards are very high. Admission requirements vary depending on the university and the specialty, but in general, applicants must have completed one year of university with high grades in biology, chemistry, physics and mathematics. Quebec students must possess a Diploma of Collegial Studies. Most universities require students to undergo an interview, provide letters of reference and pass a medical examination. Major universities in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan offer degree programs in the rehabilitation professions which students can complete within three to four years. Most graduates in these professions are women.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

Most of the rehabilitation professional programs require full-time study. Upon completion, the share of these graduates continuing with their formal studies was sharply below the average, largely because of the strong demand in the health sector for these graduates. Consequently, these graduates were much more likely to look for work immediately after graduation and were more successful in finding employment than all graduates on average. About 90% found full-time jobs, sharply higher than the average for all graduates, while most of the remaining graduates found part-time work. The rate of unemployment for these graduates was somewhat less than one-half the average.

Graduates Who Entered the Labour Force

Most graduates from these programs obtain employment in the health and social services sector as physiotherapists, occupational therapists, audiologists and speech language pathologists. Audiologists and speech language pathologists must usually complete a graduate degree. When looking for work, these graduates compete primarily among themselves for most positions in the various rehabilitation specialties, although their specialty training is not transferrable between disciplines. Two years after graduation 1986 graduates, regardless of occupation, earned about the average for all graduates at this level however, earnings vary considerably among the different specialties. The average earnings of 1982 graduates, however, grew at a considerably slower rate than the average between 1984 and 1987. Many of these graduates changed jobs between the third and fifth years of their careers, generally moving into management in the health sector.

The Course in Retrospect

About 90% of these graduates reported that they were satisfied with their jobs, virtually the same as the average; this partly reflects the fact that all of these graduates found jobs matching their training. Moreover, the proportion who believed themselves to be overqualified for their jobs was sharply below average. As a result, rehabilitation graduates appeared to be very satisfied with their educational experience as four out of five reported that they would make the same educational choices again, significantly above the average. Overall working conditions for these graduates in rehabilitation improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Rehabilitation Medicine

Medicine and Health

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	104	135	112	111	105
% Women Graduates	88.5	84.4	85.7	87.3	86.8
% of Total Graduates at this Level	0.7	0.8	0.6	0.6	0.6

Activity of Graduates	Rehabilitation Medicine Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	1	6
Did Not Enter Labour Force	2	6
Part-time Students Already in Labour Force	7	33
Entered Labour Force	90	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	98	2	0
Average for all Fields at this Level	84	9	7

Working Full-time

Medicine and Health (91%)
- Audio and Speech Therapists (88%)

Teaching (6%)
- University (3%)

Managerial and Administrative (3%)
- Administration in Medicine and Health (3%)

Rehabilitation Medicine

Master's
University (2 years)

At the graduate level in this field, students specialize in such areas as speech-language pathology, audiology, occupational therapy, physical therapy and rehabilitation science. Enrollments are limited and the entry standards are high. Admission requirements vary depending on the institution, but in general, applicants must possess an undergraduate degree in this or a closely related field of study. Most universities require applicants to pass a medical examination, be interviewed, provide letters of reference and pass graduate admission tests. Most major universities throughout Canada except those in Newfoundland, Prince Edward Island, New Brunswick and Manitoba offer graduate programs in this field, which students normally complete within two years. No programs in speech-language pathology and audiology are offered in Saskatchewan or British Columbia. Women accounted for most of the 1987 graduates in this field.

Graduate Trends and Projections

The number of graduates reflects the number of people who will be seeking similar kinds of jobs in the future. The number of graduates increased from 104 in 1981 to 112 in 1987, although the relative popularity of this field decreased somewhat. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987. This number could be revised upwards, however, if current labour market shortages prompt enrollment expansions for this program.

Activity of Graduates

Significantly smaller-than-average proportions of rehabilitative medicine graduates pursued their degrees on a part-time basis and continued their education after receiving their degrees. Not only were these graduates more apt to be in the labour force than other master's graduates, they were also more successful in obtaining work, with nearly all working full-time and the rest working part-time.

Graduates Who Entered the Labour Force

The majority of these graduates obtain work as audiologists and speech-language pathologists in the health and social service industries, while a smaller number work as administrators in medicine and health. The majority of occupational therapists and physiotherapists with graduate degrees hold university appointments. Regardless of occupation, rehabilitative medicine graduates earned about the same as the average for all master's graduates in 1988. Generally, graduates from this field of study compete among themselves for the large number of openings currently available.

About 90% of 1982 graduates changed jobs between 1984 and 1987, generally, moving out of physiotherapy into administration in medicine and health. The average salary of these graduates increased slightly faster over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

A much larger proportion of rehabilitative medicine graduates than other master's graduates would select the same educational program if the choice had to be made again. This may reflect the fact that larger-than-average proportions found jobs that matched their education and were happy with their job, as well as that a significantly smaller proportion than average felt overqualified for their job. The labour market situation for 1982 graduates of this course changed little over the 1984-to-1987 period.

Radiography/Radiation Therapy/ Nuclear Medicine Technologies

Medicine and Health

Career Program
Community College (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	494	636	637	618	607
% Women Graduates	86.4	84.6	80.4	79.5	77.0
% of Total Graduates at this Level	1.0	1.1	1.1	1.1	1.1

Activity of Graduates	Radiography/Radiation Therapy/ Nuclear Medicine Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	25
Did Not Enter Labour Force	6	3
Part-time Students Already in Labour Force	1	7
Entered Labour Force	87	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	71	23	6
Average for all Fields at this Level	75	12	13

Working Full-time

Health
(92%)

- Radiological Technologists (74%)

Other
(8%)

- Social Sciences and Related (6%)
- Natural Sciences, Engineering and Mathematics (1%)
- Clerical (1%)

Radiography/Radiation Therapy/ Nuclear Medicine Technologies

Career Program
Community College (2 years)

Individuals entering this field obtain training in medical radiation technologies such as radiography (X-ray technology), nuclear medicine technology and radiation therapy technology. Entry requirements vary by program and institution, but in general, applicants must complete senior high school courses in mathematics, chemistry, biology, physics and English (French). Most colleges also require students to undergo an interview and submit letters of recommendation. Radiography and nuclear medicine technology courses are offered in community colleges in all provinces, while radiation therapy is taught in hospitals. Students generally complete these programs within two years (including both theoretical and clinical training). Women dominate this field, accounting for 80% of total graduates in 1987, down from 86% in 1981.

Graduate Trends and Projections

The relative popularity of this course has held fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A dramatically smaller-than-average proportion of these graduates continued their education upon graduating, with a much larger proportion than average choosing to look for a job instead. This is fairly typical of graduates from health-related fields. The proportion of students receiving their diploma or certificate on a part-time basis was about nil, implying that full-time school attendance was required for this course. Although a greater-than-average proportion were successful in finding a job, about twice as many as average were working only part-time.

Graduates Who Entered the Labour Force

Most of these graduates find employment as radiological technologists in the health and social services industry; they generally face job competition only from other graduates of this course.

Two years after graduation, 1986 graduates were earning about 20% more than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation the average salary of these graduates increased at a slightly slower rate than the average. Over this period a much smaller proportion (30%) than average changed jobs.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a larger proportion than average being satisfied with their current job. This probably results from a relatively strong match between field of study and current job, smaller numbers feeling overqualified and a larger-than-average salary. Surprisingly though, only slightly more than one-half of all 1986 graduates indicated that they would make the same educational decisions if the choice had to be made again. Between the third and fifth years of their careers these graduates tended to become disillusioned with their job, with larger proportions feeling overqualified, fewer feeling their job matched their training and fewer being content with past educational decisions.

Agriculture

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(5 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	556	699	680	607
% of Total Graduates at this Level	1.1	1.4	1.4	1.4

Activity of Graduates	Agriculture Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	7
Did Not Enter Labour Force	6	4
Part-time Students Already in Labour Force	3	4
Entered Labour Force	84	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	70	9	21
Average for all Fields at this Level	74	9	17

Working Full-time

Farming, Horticulture and Animal Husbandry (33%)
- Nursery and Related (18%)
- Livestock Farmers (3%)
- Farmers (3%)
- Other Farming, Horticultural and Animal Husbandry (3%)

Managerial and Administrative (10%)
- Farm Managers (3%)
- Managers and Administrators (3%)
- Services Managers (2%)

Clerical (9%)
- Shipping and Receiving Clerks (2%)
- Production Clerks (1%)
- Cashiers and Tellers (1%)

Services (9%)
- Chefs and Cooks (3%)
- Guards and Related Security (2%)

Other (39%)

Agriculture

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(5 months)

Individuals entering this field undertake training in agriculture technology, agricultural business, plant science, crops and horticulture, landscaping and animal science. Entry requirements vary depending on the type of program (pre-employment and skill upgrading) and the institution, but most students possess a high school diploma on enrolling. Agriculture programs are offered in public institutions in all provinces except Newfoundland, Prince Edward Island, Nova Scotia and New Brunswick, and are normally completed in about five months.

Graduate Trends and Projections

The number of graduates is a reflection of the future number of people who will be competing for similar kinds of jobs. Mirroring a small increase in the relative popularity of this field, the number of graduates rose from 556 in 1984 to 699 in 1987. Under current conditions, about 5% more students per year should complete this course than in the past.

Activity of Graduates

Relative to other trade/vocational graduates, an average proportion of agricultural graduates pursue their program on a part-time basis. While just as likely to be looking for work, these graduates were somewhat less successful in finding full-time jobs than their counterparts at this level. With only an average proportion working part-time, the unemployment rate for this group was above the norm.

Graduates Who Entered the Labour Force

Most of these graduates found work as nursery and related workers in the agricultural industry, while fewer numbers found work as farmers, farm managers and agriculturalists. Two years after graduating, 1986 graduates earned about 5% less than the average for other graduates at this level, regardless of occupation. Graduates from this field primarily face job competition from community college graduates with a diploma or certificate in agriculture or a related field of study. About 80% of 1982 graduates changed jobs over the 1984-to-1987 period, generally moving between various agricultural occupations or leaving these occupations to enter management and teaching. The average salary of 1982 agriculture graduates rose faster over the 1984-to-1987 period than the average for other graduates at this level.

The Course in Retrospect

A larger-than-average proportion of agriculture graduates (75%) would choose the same educational program again. This stands in contrast to the lower-than-average proportion who found jobs related to their education, the much larger-than-average proportion who felt overqualified for their work, the lower-than-average salary and the higher-than-average unemployment rate.

Between 1984 and 1987, however, this situation improved: the percentage working full-time increased, as did the percentages who were satisfied with their job and who found a job related to their training. At the same time, the percentage who felt overqualified for their work, as well as the unemployment rate, decreased sharply over this period.

Agriculture

Career Program
Community College (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,307	1,334	1,415	1,372	1,349
% Women Graduates	43.6	43.9	48.8	52.1	61.9
% of Total Graduates at this Level	2.7	2.3	2.4	2.4	2.4

Activity of Graduates	Agriculture Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	25
Did Not Enter Labour Force	3	3
Part-time Students Already in Labour Force	2	7
Entered Labour Force	87	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	88	4	8
Average for all Fields at this Level	75	12	13

Working Full-time

Farming, Horticulture and Animal Husbandry (31%)
- Nursery Workers (8%)
- Livestock Farmers (4%)
- Livestock Farm Workers (2%)
- Crop Farm Workers (2%)

Natural Sciences, Engineering and Mathematics (14%)
- Life Sciences Technologists and Technicians (7%)
- Agriculturalists (3%)

Medicine and Health (13%)
- Other Health Occupations (9%)
- Veterinarians (2%)
- Medical Laboratory Technologists and Technicians (2%)

Mgmt./Admin. (8%)
- Farm Managers (2%)
- Advertising and Sales Managers (2%)
- Government Inspectors (1%)

Other (34%)
- Clerical (7%)
- Services (5%)
- Construction (5%)
- Sales (4%)

Natural Sciences and Primary Industries

Agriculture

Career Program
Community College
(2 years)

Individuals entering this field obtain training in agricultural technology, agricultural business, biology, plant sciences and animal science. Admission requirements vary depending on the institution, but in general, applicants must have completed senior level high school mathematics and English (French) and passed a diagnostic mathematics test. Although not strictly necessary, senior level courses in biology, chemistry and physics are favoured. Agriculture programs are offered by community colleges in all provinces except Newfoundland and Nova Scotia and are generally completed within two years, often as part of a CO-OP program combining work and study. Women represented 49% of graduates in 1987, up from 44% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period but has since risen marginally. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Upon graduation, a much smaller-than-average proportion of these graduates continued their education, with the overwhelming majority choosing to look for a job instead. The proportion of students receiving their diploma/certificate on a part-time basis was minimal, implying that full-time classroom participation is necessary for this course. A larger-than-average proportion of these graduates (92%) were successful in finding a job, with almost all working full-time. Unemployment in this group declined only slightly over time, however, largely because of small increases in part-time work.

Graduates Who Entered the Labour Force

Most agriculture graduates find employment as nursery workers or as life sciences technologists and technicians in agriculture or related industries, while smaller numbers work as farmers, agriculturalists, farm managers or government inspectors. Graduates from this course generally face job competition from other community college and trade/vocational graduates from this or related fields of study, and from university graduates with an undergraduate qualification in biology or agricultural sciences.

Two years after graduation, 1986 graduates were earning about 5% less than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of agriculture graduates increased at a faster rate than the average for other community college graduates. Over this period a greater-than-average proportion (55%) changed jobs, with movement generally occurring among farming, life sciences technologist and technician, and farm management and sales occupations.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a larger-than-average proportion of these graduates expressing satisfaction with their current job. This probably results from a relatively strong match between field of study and current job and a relatively low rate of unemployment. On the other hand, a greater-than-average number of these graduates felt overqualified for their current job and their average salary was less than that of other community college graduates. An average proportion (65%) of 1986 agriculture graduates indicated that they would make the same educational decisions if the choice had to be made again. Between the third and fifth years of their careers, these graduates felt less positive toward their job, with a larger proportion feeling overqualified, slightly fewer feeling their job matched their training and fewer being content with past educational decisions.

Animal and Plant Sciences

Undergraduate
University (4 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	513	431	506	524	545
% Women Graduates	36.5	43.4	47.6	47.9	48.3
% of Total Graduates at this Level	0.5	0.4	0.4	0.4	0.4

Activity of Graduates	Animal and Plant Sciences Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	21	14
Did Not Enter Labour Force	9	5
Part-time Students Already in Labour Force	10	20
Entered Labour Force	60	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	83	2	15
Average for all Fields at this Level	80	10	10

Working Full-time

Farming, Horticulture and Animal Husbandry (21%)
- Crop Farm Workers (7%)
- Foremen/women: Farming, Horticulture and Animal Husbandry (4%)
- Livestock Farmers (3%)

Teaching (18%)
- University Teaching and Related (14%)
- Secondary School Teachers (4%)

Natural Sciences (17%)
- Agriculturists and Related Scientists (14%)
- Chemists (3%)

Managerial and Administrative (13%)
- Government Inspectors and Regulatory Officers (3%)
- Personnel and Related Officers (3%)

Other (31%)
- Sales (7%)
- Clerical (4%)
- Artistic and Literary (4%)

Natural Sciences and Primary Industries

Animal and Plant Sciences

Undergraduate
University (4 years)

People entering this field specialize in poultry science, poultry genetics, plant protection, plant physiology and horticulture. Entry requirements vary depending on the university, but in general, applicants must complete high school with good grades in mathematics, biology, chemistry and physics. Quebec students must possess a Diploma of Collegial Studies. These programs are offered by major universities in all provinces except Newfoundland, Prince Edward Island and New Brunswick and can be completed within four years, sometimes as part of a CO-OP program combining study with on-the-job training. Women accounted for 48% of all 1987 graduates, up from 36% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of animal and plant sciences graduates who completed their degrees through part-time study was significantly below average compared with all other graduates at this level. A larger-than-average proportion decided to continue their education upon graduation, perhaps because of the difficulties earlier graduates encountered in the job market. These graduates were just as likely to look for work immediately upon graduation as others at this level, but were somewhat less successful in finding it. The proportion finding full-time work was somewhat higher than average, but the proportion finding part-time work was much lower, and as a result the rate of unemployment for these graduates was significantly higher than the average.

Graduates Who Entered the Labour Force

Most graduates in this field find jobs as agriculturists, teachers, chemists, government inspectors and regulatory officers in the federal and provincial governments, the educational sector, and the agricultural industry. For teaching positions, they compete with other university graduates in education and the sciences, and for positions as agriculturists, chemists and government inspectors they compete with community college and university graduates in other agricultural sciences, biology and chemistry. Two years after graduation, regardless of occupation, they earned significantly less than the average for all other graduates at this level. The average earnings of 1982 graduates, however, grew at a much faster pace between 1984 and 1987 than the average of all other graduates. Few of these graduates changed occupations between the third and fifth years of their careers.

The Course in Retrospect

The transition from school to work was a positive experience for these graduates, as a much larger-than-average proportion reported that they were satisfied with their jobs. This reflects a relatively strong match between field of study and current job, but contrasts with the fact that a much larger-than-average proportion believed themselves to be overqualified, that salaries were lower than average and that unemployment was much higher than the average. Only two out of every three of these graduates indicated that they would make the same educational choices again if given the opportunity. Between the third and fifth years of their careers, their level of job satisfaction remained fairly constant, although a smaller proportion believed themselves to be overqualified and a slightly higher proportion felt that their jobs matched their training.

Animal and Plant Sciences

Master's
University (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	107	131	109	108	103
% Women Graduates	33.6	35.1	41.3	42.0	41.8
% of Total Graduates at this Level	0.7	0.8	0.6	0.6	0.6

Activity of Graduates	Animal and Plant Sciences Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	16	6
Did Not Enter Labour Force	14	6
Part-time Students Already in Labour Force	28	33
Entered Labour Force	42	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	83	10	7
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (63%)
- Agriculturalists (29%)
- Biologists (7%)
- Life Sciences Technologists and Technicians (7%)
- Physical Sciences Technologists and Technicians (7%)

Teaching (14%)
- University and Related (14%)

Managerial and Administrative (7%)
- Management Occupations, Natural Sciences and Engineering (7%)

Other (16%)

Natural Sciences and Primary Industries

Animal and Plant Sciences

Master's
University (2 years)

Individuals seeking a master's degree in this field specialize in such areas as animal husbandry, poultry science, crop science, horticulture, plant protection and weed science. Admission requirements vary depending on the institution, but in general, applicants must have an undergraduate honours degree in this or a closely related field (for example, biology). Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. Major universities in all provinces except Atlantic Canada offer master's degrees in this field, which typically take two years to complete. Some universities offer special graduate diploma or certificate programs that are shorter in duration but still require an undergraduate degree before admission. Men make up the majority of graduates but 41% of all 1987 graduates were women, up from 34% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students has remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, the number of new graduates is expected to be about 10% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Smaller-than-average proportions of these graduates than other master's graduates either pursued their degrees on a part-time basis or entered the labour force immediately. Consequently, a much larger proportion than average continued their education. Although less likely to seek work upon graduation, those that entered the labour force were as successful in finding full- or part-time work as other master's graduates.

Graduates Who Entered the Labour Force

The majority of these graduates find work as agriculturists in the provincial or territorial government service industries, and a smaller number work as university teachers, biologists, and life or physical sciences technologists and technicians. Regardless of occupation, these 1986 graduates earned about 20% less than the average for all master's graduates two years after graduation. Generally, job competition in this field comes from those with universities degrees, diplomas or certificates in agriculture and those with community college diplomas or certificates in agriculture and related fields of study.

About 45% of 1982 graduates changed jobs between 1984 and 1987. Most of them moved from technologist or technician into biologists occupations. The average salary of these graduates increased more slowly over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

A smaller proportion of these graduates (70%) would choose the same educational program than other master's graduates if they had to make the choice again. This may be a reflection of their lower-than-average earnings because all did find jobs matching their education. A much lower proportion than average felt overqualified for their work, which no doubt contributed to the greater-than-average proportion reporting job satisfaction. The situation was stable over the 1984-to-1987 period, with the exception that more felt overqualified for their jobs.

Other Agriculture

Undergraduate
University (3 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	459	452	448	456	470
% Women Graduates	29.2	34.7	34.2	34.3	34.6
% of Total Graduates at this Level	0.5	0.4	0.4	0.4	0.4

Activity of Graduates	Other Agriculture Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	18	14
Did Not Enter Labour Force	6	5
Part-time Students Already in Labour Force	6	20
Entered Labour Force	70	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	85	7	8
Average for all Fields at this Level	80	10	10

Working Full-time

Farming, Horticulture and Animal Husbandry (20%)
- Animal Care, Inspecting and Testing (10%)
- Farmers (4%)
- Crop Farm Workers (3%)
- Livestock Farmers (2%)

Natural Sciences (18%)
- Agriculturists and Related Scientists (10%)
- Life Sciences Technologists and Technicians (3%)
- Agricultural Engineers (2%)

Managerial and Administrative (14%)
- Accountants, Auditors and Other Financial Officers (6%)
- Government Inspectors and Regulatory Officers (2%)

Sales (11%)
- Commercial Travellers (8%)
- Technical Sales and Related Advisors (3%)

Other (37%)
- University Teaching and Related (7%)
- Machining and Machine Tool Setting Up (7%)
- Medical Laboratory Technologists and Technicians (6%)

Natural Sciences and Primary Industries

Other Agriculture

Undergraduate
University (3 years)

Individuals entering this field study the science of agriculture, dairy, food and soil. Prerequisites for entry vary depending on the university, but in general, applicants must complete high school with good grades in mathematics, chemistry, biology and physics. (Quebec students must have a Diploma of Collegial Studies.) Major universities in all provinces except Newfoundland, Prince Edward Island and New Brunswick offer degree programs in this field. Students can normally complete their courses in three years, sometimes as part of a CO-OP program combining formal studies and work experience. Some universities offer one- or two-year programs leading to a diploma or certificate. Men make up the majority of graduates, but women are taking an increasingly important role and accounted for 34% of 1987 graduates, compared to 29% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, the number of graduates from this course is expected to be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of graduates in these agriculture programs who study part-time is significantly below average when compared with all graduates at this level. Moreover, the proportion who continue their formal studies upon graduation is somewhat higher than the average for all other graduates, suggesting that a higher degree enhances both job and income prospects. A higher-than-average number look for work immediately upon graduation. Graduates in these agriculture programs, once in the labour market, are somewhat more successful in finding work than other graduates. More find full-time work than average, although the proportion who find part-time work was somewhat lower, resulting in slightly lower-than-average unemployment.

Graduates Who Entered the Labour Force

Graduates from these other agriculture programs generally find employment as agriculturists and related scientists, agricultural technologists and technicians, farmers, or in horticulture and animal husbandry with health and social service, business services or in provincial and local governments. When looking for work, they compete with community college and other university graduates in animal and plant sciences, biology, and chemistry for various positions in agriculture. Two years after graduation, regardless of occupation, these graduates earned significantly less than the average for all graduates at this level. However, the average earnings of these 1982 graduates grew at a much faster pace between 1984 and 1987 than the average earnings of all graduates at this level. Many change jobs between the third and fifth years of their careers, leaving direct farming for farm management or government inspection of animals and crops.

The Course in Retrospect

These agriculture graduates appeared to be more unhappy with their educational experience than other graduates, with a significantly lower-than-average share reporting that they would make the same educational choices again. In their work experience, the proportion who found jobs matching their undergraduate training was somewhat below average and the number who believed themselves to be overqualified for their jobs was also somewhat lower than average. Despite their lower-than-average earnings, almost 90% of these graduates reported satisfaction with their jobs, virtually the same as the average for all graduates at this level. In addition, overall work conditions showed a slight improvement in employment, and a significant improvement in earnings between the third and fifth years of their careers.

Other Agriculture

Master's
University (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	84	83	69	68	65
% Women Graduates	29.8	33.7	29.0	29.5	29.4
% of Total Graduates at this Level	0.6	0.5	0.4	0.4	0.4

Activity of Graduates	Other Agriculture Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	6
Did Not Enter Labour Force	10	6
Part-time Students Already in Labour Force	25	33
Entered Labour Force	60	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	3	15
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (50%)
- Agriculturalists (41%)
- Life Sciences Technologists and Technicians (9%)

Teaching (28%)
- University and Related (16%)
- Other Post-Secondary School (12%)

Managerial and Administrative (22%)
- Management Occupations in Natural Sciences and Engineering (10%)

Natural Sciences and Primary Industries

Other Agriculture

Master's
University (2 years)

At the master's level in this field, specialties include a variety of subfields: soil physics, soil chemistry, agricultural entomology, agricultural microbiology, agricultural parasitology and virology, agriculture and dairy science. Depending on the university prerequisites vary, but generally applicants must have an undergraduate honours degree in this or a closely related field of study (such as biology or chemistry). Most universities require applicants to go through an interview, provide letters of reference and pass graduate admission tests. Major universities in all provinces except Atlantic Canada offer master's degrees in this field. Typically, students can complete the courses within two years, often as part of a CO-OP program combining work and academics. Men make up a majority of graduates, but women accounted for 29% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course among students remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Compared to other fields of study, fewer than average of these graduates studied part-time and fewer continued with formal education after receiving their degree. While these graduates were more apt to enter the labour market, they were somewhat less successful in their job searches, as more than double the average of other master's graduates remained unemployed.

Graduates Who Entered the Labour Force

Most of these graduates find work as agriculturalists, in the provincial and territorial government services; a smaller number work in a university environment or as other post-secondary teachers, life sciences technologists or technicians, and in management occupations in natural sciences. In 1988, regardless of occupation, these 1986 graduates earned about 15% less than the average for all master's graduates. Generally, job competition in this field comes from other recipients of degrees, diplomas or certificates in agriculture or related fields of study.

About 60% of 1982 graduates changed jobs between 1984 and 1987, most moving among occupations in agriculture, biology and chemistry. The average salary of these graduates increased more slowly over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

Compared with other master's graduates, a larger proportion of these graduates (80%) would choose the same educational program if they had to make the choice again. This may reflect the higher-than-average proportion who expressed job satisfaction, although a smaller-than-average proportion found jobs related to their education and a somewhat larger proportion than average believed they were overqualified for their jobs. There was little change between the third and fifth years of their careers.

Biology

Undergraduate
University (3 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,442	2,316	3,427	3,559	3,716
% Women Graduates	45.2	49.1	51.2	51.5	52.0
% of Total Graduates at this Level	2.5	2.1	2.9	2.9	2.9

Activity of Graduates	Biology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	42	14
Did Not Enter Labour Force	12	5
Part-time Students Already in Labour Force	10	20
Entered Labour Force	36	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	67	15	18
Average for all Fields at this Level	80	10	10

Working Full-time

Teaching (22%)

- Secondary School Teachers (10%)
- University Teaching and Related (9%)
- Elementary School Teachers (2%)

Managerial and Administrative (17%)

- Services Managers (3%)
- Sales and Advertising Managers (2%)

Clerical and Related (14%)

- Supervisors: Bookkeeping & Account Recording (2%)
- Bookkeepers & Accounting Clerks (2%)
- Stock Clerks (2%)

Natural Sciences (11%)

- Life Sciences Technologists and Technicians (5%)
- Biologists and Related Scientists (3%)

Other (36%)

- Commercial Travellers (4%)
- Other Medical & Health (3%)
- Guides (3%)
- Food and Beverage Waiters (3%)
- Medical Laboratory Technologists & Technicians (2%)
- Sales Clerks (2%)

Natural Sciences and Primary Industries

Biology

Undergraduate
University (3 years)

People entering this field obtain training in a variety of areas of biology, including microbiology, cell biology, botany, animal biology, marine biology, genetics, ecology and evolution. The entry requirements vary depending on the university but in general, applicants must complete high school with good grades in mathematics, chemistry, physics and biology. Quebec students must possess a Diploma of Collegial Studies. These programs are offered in all provinces and can be completed in three to four years, sometimes as part of a CO-OP program combining work and formal studies. Some universities offer certificate and diploma programs that are shorter in duration. Women accounted for 51% of total graduates in 1987, up from 45% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period, but has since risen to surpass its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 40% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of biology graduates who complete their degrees through part-time study is about one-half the average of all other graduates at this level. A significantly higher-than-average share, however, continue their formal studies upon graduation, suggesting that further education enhances job and income prospects in this field. Consequently these graduates are much less apt to seek employment immediately upon graduation, and they are also much less successful in finding it. The proportion who find full-time work is much smaller than the average and the proportion who find part-time work higher than average, while the rate of unemployment is almost twice the average.

Graduates Who Entered the Labour Force

Biology graduates primarily find jobs as secondary school teachers or as life sciences technologists and technicians in the health and social services sector, the business services industry and in government. For teaching positions, biology graduates must obtain an education degree and then compete with university graduates from all fields, but especially those in the sciences. For the life sciences technology positions, biology graduates compete with community college and university graduates in the other agriculture and biological sciences. Two years after graduation, regardless of their occupation, biology graduates earned substantially less than the average income for all other graduates at this level. The average earnings of 1982 graduates in biology, however, grew at a somewhat faster rate between 1984 and 1987 than the average earnings of all other graduates. Many of these biology graduates changed jobs between the third and fifth years of their careers, mostly moving out of university teaching assistant occupations, and clerical and sales jobs into teaching, life sciences and health technologies and management positions.

The Course in Retrospect

These graduates were fairly unhappy with their educational experience, as a sharply lower-than-average share reported that they would make the same educational choices again. This dissatisfaction may reflect to some extent, the failure of many of these students to get into medical school. Moreover, the proportion of 1986 biology graduates who found jobs matching their undergraduate training was sharply below average and the proportion who believed themselves to be overqualified for their jobs was above average. Nonetheless, despite their sharply lower-than-average earnings, about 85% reported that they were satisfied with their jobs. Furthermore, overall working conditions for these graduates in biology improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Biology

Master's
University (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	208	205	312	309	294
% Women Graduates	38.0	37.1	43.9	44.7	44.5
% of Total Graduates at this Level	1.5	1.3	1.8	1.8	1.8

Activity of Graduates	Biology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	32	6
Did Not Enter Labour Force	19	6
Part-time Students Already in Labour Force	13	33
Entered Labour Force	36	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	70	18	12
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (44%)	Teaching (25%)	Medicine and Health (14%)	Managerial and Administrative (7%)	Other (10%)
• Biologists (36%) • Physical Sciences Technologists (3%) • Life Sciences Technologists and Technicians (2%)	• University and Related (15%) • Other Elementary and Secondary School (5%) • Secondary School (3%) • Community College and Vocational (3%)	• Medical Laboratory Technologists (8%)	• Administrators in Teaching (3%) • Management Occupations in Natural Sciences (2%)	

Natural Sciences and Primary Industries

Biology
Master's
University (2 years)

At the master's level, individuals in this field specialize in such fields as microbiology, genetics, cell biology, animal physiology, botany and ecology. The admission requirements vary depending on the university, but in general, applicants must have an undergraduate honours degree in biology or a closely related field of study. Most universities also require applicants to provide letters of reference. The master's degree in biology is offered by major universities in all provinces except Prince Edward Island. Students can complete the program within two years, sometimes as part of a CO-OP program combining work and study. The master's degree is generally a research program which requires the completion of a thesis, but there are some programs which rely only on coursework. Women accounted for 44% of all 1987 graduates, up from 38% in 1981, and their representation in this field is expected to grow.

Graduate Trends and Projections

The relative popularity of this course declined marginally over the 1981-to-1984 period, but has since risen to exceed its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly smaller proportion of biology graduates pursue their degrees on a part-time basis compared to the average for all master's graduates. The proportion who continue their education after receiving their degree is over four times larger than the average, indicating the value of, or need for, a doctorate when competing for a job. Biology graduates are less likely to enter the labour market and work full-time than other master's graduates, as indicated by much higher levels of unemployment and part-time work.

Graduates Who Entered the Labour Force

Most of these graduates find work as biologists in the educational service industry, whereas a smaller number work as university, elementary and secondary school teachers and medical and laboratory technologists and technicians. Two years after graduation, 1986 biology graduates earned about 20% less than the average for all master's graduates, regardless of occupation. Generally, graduates from this field of study encounter competition for jobs from undergraduates or those with doctorates in biology or other agriculture-biological sciences and from community college graduates with a diploma or certificate in other health and related fields.

About 60% of 1982 graduates changed jobs between 1984 and 1987, generally moving out of biology and related sciences into management or agriculture. The average salary of these graduates increased more slowly over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

About an average proportion of biology graduates (80%) would choose the same educational program if they had to make the choice again. This may reflect the average proportions who found jobs that matched their education, felt overqualified and expressed satisfaction with their jobs. These factors appear to outweigh the impact of lower-than-average earnings. Further survey data show that this situation changed little over the 1984-to-1987 period, with the exception that a larger percentage were employed full-time in 1987 than in 1984.

Biology

Doctorate
University (4 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	70	81	129	144	143
% Women Graduates	15.7	24.7	31.8	32.4	32.2
% of Total Graduates at this Level	3.9	4.3	5.4	5.4	5.4

Activity of Graduates	Biology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	3
Did Not Enter Labour Force	7	2
Part-time Students Already in Labour Force	11	20
Entered Labour Force	76	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	97	0	3
Average for all Fields at this Level	88	7	5

Working Full-time

Natural Sciences (47%)
- Biologists and Related Scientists (27%)
- Life Sciences Technologists and Technicians (6%)
- Agriculturalists and Related Scientists (5%)
- Physical Sciences Technologists and Technicians (5%)

Teaching and Related (44%)
- University Teaching and Related (33%)
- University Teaching (11%)

Other (9%)
- Social Sciences (4%)
- Clerical and Related (4%)

Natural Sciences and Primary Industries

Biology

Doctorate
University (4 years)

At the doctoral level, biology students specialize in a variety of subfields, such as microbiology, genetics, cell biology, animal physiology, botany and ecology. The admission requirements vary depending on the university, but all applicants must have a master's degree or the equivalent with high standing. Most universities require applicants to provide letters of reference and demonstrate the ability to do research. Doctorates in biology, which students generally complete in three to four years, are awarded by major universities in all provinces except Prince Edward Island. Women accounted for 32% of all biology doctorates awarded in 1987, up from 15% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course over the 1989-to-1995 period will be almost double what it was between 1981 and 1987.

Activity of Graduates

The proportion of biology doctorates who obtain their degrees on a part-time basis is one-half the average for all doctorates. Upon completion, however, the share of biology doctorates who continue with post-doctoral research is twice the average, indicating that such studies enhance career prospects in some areas of biology. The proportion of biology doctorates who look for work immediately upon the completion of their studies is about average, and they are very successful in finding related work, with most obtaining full-time jobs. The unemployment rate in this field is somewhat lower than the average for all doctorates.

Graduates Who Entered the Labour Force

Biology doctorates generally find work as university professors or researchers, agriculturists, biologists, and life science technologists and technicians. They compete almost entirely among themselves for university teaching positions, but compete with other university graduates in this and related fields at all levels for the non-university teaching positions. Two years after graduation, 1986 graduates were earning significantly less than the average of all doctorates. The average earnings of 1982 doctorates in biology, however, increased at a significantly faster rate between 1984 and 1987 than the average of all other doctorates. Many change jobs between the third and fifth years of their careers, generally moving into university teaching from related university positions or into jobs as practicing biologists from agricultural-related positions.

The Course in Retrospect

The transition of biology doctorates from the education system to the workforce seems fairly successful, with virtually all 1986 doctorates reporting that they were satisfied with their current jobs despite their relatively low earnings. Almost all found jobs matching their education, and a lower-than-average share believed that they were overqualified for their jobs. The share of these graduates who reported that they would make the same educational choices again, given the opportunity, was virtually the same as the average for all other doctorates. Overall working conditions for biology doctorates improved significantly in terms of earnings, remained fairly stable in terms of job satisfaction and deteriorated in terms of employment between the third and fifth years of their careers.

Environmental and Conservation Technologies

Career Program
Community College (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	564	573	615	596	586
% Women Graduates	31.7	28.6	19.7	15.2	7.0
% of Total Graduates at this Level	1.2	1.0	1.0	1.0	1.0

Activity of Graduates	Environmental and Conservation Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	16	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	5	7
Entered Labour Force	78	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	81	3	16
Average for all Fields at this Level	75	12	13

Working Full-time

Natural Sciences, Engineering and Mathematics (38%)
- Engineering Technologists and Technicians (9%)
- Life Sciences Technologists and Technicians (7%)
- Physical Sciences Technologists and Technicians (6%)

Services (13%)
- Guards and Watchpersons (6%)

Other (49%)
- Management and Administration (7%)
- Agriculture (7%)
- Construction Trades (7%)
- Clerical (4%)

Natural Sciences and Primary Industries

Environmental and Conservation Technologies

Career Program
Community College (2 years)

Individuals entering this field obtain training in a variety of specialties including pollution control, land resources, wildlife and forest conservation, water sciences and air purification. Entry requirements vary depending on the program and the institution, but in general, applicants must complete high school courses in English (French), mathematics and at least two sciences, as well as pass a diagnostic mathematics test. Community colleges in all provinces except Newfoundland offer programs in environmental technologies which students typically complete within two years, often as part of a CO-OP program combining work and study. Women accounted for 20% of 1987 graduates, down sharply from 32% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period and has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A smaller-than-average proportion of these graduates continued their education upon graduating, with a larger proportion than average choosing to look for a job instead. The proportion receiving their diploma or certificate on a part-time basis was slightly less than average, implying that full-time classroom participation in this course was advisable. Although a slightly smaller-than-average proportion were successful in finding a job, almost all of these were working full-time. Unemployment in this group declines over time, however, largely the result of increases in part-time employment.

Graduates Who Entered the Labour Force

Most environmental and conservation technology graduates find employment as engineering technologists or technicians in the business and professional services industry or with provincial governments, while smaller numbers work as life or physical science technologists or technicians. They generally face job competition from other engineering technology graduates at the trade/vocational and community college levels and from university graduates in engineering.

Two years after graduation, 1986 graduates were earning about 15% more than others at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of these graduates increased at a slower rate than the average. Over the same period a much larger-than-average proportion (60%) changed jobs, usually moving from positions as engineering technologists or technicians to government inspectors or from protective services into forestry.

The Course in Retrospect

The transition from school to work did not appear to be an overly positive experience for these graduates, as indicated by a slightly smaller proportion than aveage expressing satisfaction with their current job. This probably results from a relatively weak match between field of study and current job, a larger-than-average number feeling overqualified and the difficulty in finding a job. Only one out of every two 1986 graduates indicated that they would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates tended to become even more disillusioned, with a much larger proportion feeling overqualified for their job and far fewer being content with past educational decisions, although more felt their current job matched their training in 1987 than did in 1984.

Food and Household Sciences

Undergraduate
University (4 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	823	795	950	986	1,029
% Women Graduates	97.2	96.0	95.1	95.5	96.4
% of Total Graduates at this Level	0.8	0.7	0.8	0.8	0.8

Activity of Graduates	Food and Household Sciences Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	22	14
Did Not Enter Labour Force	7	5
Part-time Students Already in Labour Force	7	20
Entered Labour Force	64	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	77	12	11
Average for all Fields at this Level	80	10	10

Working Full-time

Medicine and Health (33%)
- Dieticians and Nutritionists (31%)

Managerial/Administrative (22%)
- General Managers (4%)
- Sales and Advertising (4%)
- Services Managers (2%)
- Production Managers (2%)
- Medicine and Health Administrators (2%)
- Financial Managers (2%)

Teaching and Related (11%)
- University Teaching and Related (4%)
- Secondary School Teachers (2%)
- Elementary and Kindergarten Teachers (2%)
- Elementary and Secondary School Teaching and Related (2%)

Other (34%)
- Social Sciences (7%)
- Natural Sciences (5%)
- Service Occupations (5%)
- Sales (4%)
- Artistic, Literary and Recreational (4%)

Food and Household Sciences

Undergraduate
University (4 years)

People entering this field learn the principles of nutrition, food science, household science, and consumer and family studies. The admission requirements vary depending on the university, but in general, applicants must complete high school with above-average standing in mathematics, chemistry, biology and physics. Quebec students must have a Diploma of Collegial Studies. Universities in all provinces offer degree programs in this field, which the student can typically finish within four years, sometimes as part of a CO-OP program combining study with on the job training. Some universities in Quebec offer certificate or diploma programs in the food and household sciences that are shorter than the full degree programs. Virtually all graduates in this field were women, who accounted for 95% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of graduates in the food and household sciences who complete their degrees through part-time study is about one-third the average of all other graduates at this level, suggesting that this course is more easily completed through full-time classroom participation. A significantly higher-than-average share of these graduates continue their formal studies upon graduation, implying that a higher degree improves job and income prospects in this field. Graduates in the food and household sciences were just as likely to seek employment immediately upon graduation as other graduates at this level. Although these graduates were just as successful in finding employment as other graduates, a higher proportion were employed only on a part-time basis. The rate of unemployment for graduates in the food and household sciences was about the same as the average for all other graduates at this level.

Graduates Who Entered the Labour Force

Graduates in this field primarily find jobs as dieticians and nutritionists, with smaller numbers taking positions as university and secondary school teachers, management consultants, sales and advertising managers, and general managers in a variety of sectors. For teaching positions, these graduates must obtain an education degree and then compete with university graduates from all fields (especially the sciences). For the dietician and nutritionist positions, these graduates compete primarily among themselves, but sometimes with community college or university graduates with a higher degree or diploma. Two years after graduation, 1986 graduates earned substantially less than the average income for all other graduates at this level, regardless of occupation. Furthermore, the average earnings of 1982 graduates grew at a somewhat slower rate between 1984 and 1987 than the average earnings of all other graduates. Few of these household sciences graduates change jobs between the third and fifth years of their careers, with those who do usually moving out of supervisory occupations in the food industry into management occupations.

The Course in Retrospect

About 90% of all 1986 graduates in the food and household sciences reported that they were satisfied with their current jobs. The proportion who found jobs matching their undergraduate training was somewhat above average and the proportion who believed themselves to be overqualified for their jobs was significantly below average. Nonetheless, these graduates were fairly unhappy with their educational experience, as a significantly lower-than-average share reported that they would make the same educational choices again. Overall working conditions for these graduates improve significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Food Processing Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(5 months)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	817	714	695	620
% of Total Graduates at this Level	1.6	1.4	1.4	1.4

Activity of Graduates	Food Processing Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	7
Did Not Enter Labour Force	3	4
Part-time Students Already in Labour Force	1	4
Entered Labour Force	94	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	79	6	15
Average for all Fields at this Level	74	9	17

Working Full-time

Food, Beverage and Related Processing (56%)	Managerial and Administrative (9%)	Service Occupations (8%)	Sales (6%)	Other (21%)
• Slaughtering and Meat Cutting, Canning, Curing and Packing (49%)	• Sales Managers (6%)	• Chefs and Cooks (3%)	• Salespersons (5%)	

Food Processing Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(5 months)

People entering this field obtain training in processing meat, seafood, dairy products and other foods. The admission requirements vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most graduates have completed secondary school before enrolling. Institutions in all provinces except Prince Edward Island and New Brunswick offer instruction in food processing technologies, which students normally complete in about five months.

Graduate Trends and Projections

The number of graduates is a good indicator of the number of people who will be competing for similar kinds of jobs in the future. The number of graduates declined from 817 in 1984 to 714 in 1987, mirroring a fall in the relative popularity of this field of study. Under current conditions, about 15% fewer students per year should complete this course than in the past.

Activity of Graduates

A lower-than-average proportion of these graduates pursue their program on a part-time basis, while a larger-than-average proportion enter the labour force after graduating. Once in the labour force they are slightly more successful in finding full-time work, as witnessed by their lower-than-average unemployment rate.

Graduates Who Entered the Labour Force

The majority of these graduates find work in slaughtering and meat cutting, canning, curing and packing occupations in the food industry, while smaller numbers work as sales managers, sales clerks, and chefs and cooks. Regardless of occupation, 1986 graduates earned about the same as the average for other graduates at this level in 1988. Graduates from this field generally face job competition from community college graduates with a diploma or certificate in resource processing technologies. About 50% of 1982 graduates changed jobs between 1984 and 1987, mainly moving out of slaughtering and meat cutting into sales management. Their average salary rose almost as fast over the 1984-to-1987 period as the average for other graduates at this level.

The Course in Retrospect

The proportion of food processing technologies graduates (70%) who would choose the same educational program again is about average. This is in spite of the fact that a lower-than-average proportion find work related to their education and a larger-than-average proportion feel overqualified for their work. A larger percentage of 1982 graduates were working full-time in 1987 than in 1984.

Forestry

Undergraduate
University (4 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	386	388	400	412	427
% Women Graduates	19.2	19.3	12.8	12.8	12.9
% of Total Graduates at this Level	0.4	0.4	0.3	0.3	0.3

Activity of Graduates	Forestry Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	25	14
Did Not Enter Labour Force	7	5
Part-time Students Already in Labour Force	5	20
Entered Labour Force	63	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	5	9
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Science (54%)
- Forestry Engineers (21%)
- Life Sciences Technologists and Technicians (15%)
- Occupations in the Life Sciences (5%)
- Chemists (4%)

Managerial and Administrative (19%)
- Production Managers (6%)

Forestry and Logging (9%)
- Foremen/women in Forestry and Logging (4%)
- Forestry Conservation (4%)

Product Fabricating (7%)
- Industrial, Farm and Construction Machinery Mechanics and Repairers (7%)

Other (11%)
- Farming and Related (6%)
- Teaching and Related (4%)

Natural Sciences and Primary Industries

Forestry

Undergraduate
University (4 years)

Individuals entering this field obtain training in all aspects of forestry, including ecology, harvesting, resource management, wildlife, wood science and forestry economics. Entry requirements vary depending on the university, but generally applicants must finish high school with an above-average standing and a solid basis in mathematics, chemistry, biology and physics. Quebec students must possess a Diploma of Collegial Studies. Major universities in New Brunswick, Quebec, Ontario, Alberta and British Columbia offer degree programs which students can finish within four years. Some universities in Quebec and Ontario offer diploma or certificate programs that are shorter in duration than the full degree programs. Men dominate this field, with women accounting for only 13% of total graduates in 1987, down from 19% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students has remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of forestry graduates who complete their degrees through part-time study is about one-quarter the average of all other graduates at this level. A high share of forestry graduates, moreover, continue their formal studies upon graduation, suggesting that a graduate degree enhances job and income prospects in this field. Forestry graduates were just as likely as other students to look for employment immediately upon graduation and were equally successful in finding it. They were more likely, however, to take full-time work. The rate of unemployment for graduates in forestry approximated the average for all other graduates at this level.

Graduates Who Entered the Labour Force

Graduates in forestry primarily find jobs as professional forestry engineers, life sciences technologists/technicians and forestry production managers. These positions are generally concentrated in the fire-fighting and forestry regulatory services of provincial and territorial governments and in the business services, forestry services and logging industries. Forestry graduates must compete with other university graduates in engineering for professional engineering positions and with university graduates in chemistry for forestry chemists positions. For life sciences technology positions, competition comes from community college and university graduates, especially in biology and geography. Two years after graduation, 1986 graduates earned slightly less than the average for all other graduates at this level, regardless of occupation. Furthermore, the income growth of 1982 graduates in forestry sciences was significantly slower between 1984 and 1987 than the average. Between the third and fifth years of their careers, many of these graduates move into supervisory and management positions in the logging and pulp and paper industries.

The Course in Retrospect

Survey results reveal a high level of job satisfaction among forestry sciences graduates, reflecting their success in finding jobs that match their undergraduate training. The proportion who believe themselves to be overqualified for their jobs is somewhat below the average for all graduates at this level. Nonetheless, survey data suggest that these graduates were less happy than other undergraduates with their educational experience, as a lower-than-average share reported that they would make the same educational choices again. While employment conditions and job satisfaction grew significantly between the third and fifth years of their careers, only slight improvement in earnings was recorded.

Forestry

Master's
University (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	53	65	70	69	66
% Women Graduates	18.9	20.0	21.4	21.8	21.7
% of Total Graduates at this Level	0.4	0.4	0.4	0.4	0.4

Activity of Graduates	Forestry Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	9	6
Did Not Enter Labour Force	11	6
Part-time Students Already in Labour Force	34	33
Entered Labour Force	46	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	85	7	8
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (62%)
- Systems Analysts and Computer Programmers (17%)
- Physical Sciences Technologists and Technicians (16%)
- Engineering Occupations (15%)

Teaching (20%)
- University Teachers (20%)

Forestry and Logging (18%)
- Forestry and Logging (18%)

Natural Sciences and Primary Industries

Forestry

Master's
University (2 years)

People studying forestry at the graduate level specialize in various subfields such as dendrology, forest ecology, forest harvesting, and forest and wildlife management. The admission prerequisites vary depending on the university, but in general, applicants must possess an honours undergraduate degree in forestry or a closely related field of study (e. g., biology or chemistry). Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. Master's degree programs in forestry are offered in New Brunswick, Quebec, Ontario, Alberta and British Columbia. Students normally complete these programs within two years, sometimes as part of a CO-OP program combining work and study. Men make up the majority of graduates, with women accounting for 21% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course held steady over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Relative to other master's graduates, about an average proportion of forestry graduates pursue their degrees on a part-time basis. The percentage continuing their education after graduation is also average, as is the percentage looking for work. These graduates were just as successful in finding full- and part-time jobs.

Graduates Who Entered the Labour Force

In general, survey data indicate that most of these graduates will obtain work as university teachers in the educational service industries, while a smaller number will work in forestry occupations, as systems analysts and as physical science technologists/technicians. Two years after graduation, 1986 forestry graduates earned about the same as the average for all master's graduates, regardless of occupation. Graduates from this field generally encounter competition for jobs from other master's graduates with a degree in the same field of study.

About 65% of 1982 graduates changed jobs between 1984 and 1987, generally moving out of positions as physical science technologists/technicians into biology, and out of positions as life science technologists/technicians into log inspecting, grading, scaling and related occupations. The average salary of 1982 graduates increased more slowly over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

A much smaller proportion of forestry graduates (60%) than other master's graduates would choose the same educational program if the choice had to be made again. This is surprising, given the fact that an average proportion found work that matched their education, a lower-than-average proportion felt overqualified and virtually all forestry graduates were satisfied with their jobs. Furthermore, the number working full-time increases between the second and fifth years of their careers.

Forestry Technologies

Career Program
Community College (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	729	756	538	522	513
% Women Graduates	16.3	16.1	14.3	13.8	12.5
% of Total Graduates at this Level	1.5	1.3	0.9	0.9	0.9

Activity of Graduates	Forestry Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	15	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	5	7
Entered Labour Force	79	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	74	2	24
Average for all Fields at this Level	75	12	13

Working Full-time

Natural Sciences, Engineering and Mathematics (33%)
- Life Sciences Technologists and Technicians (25%)
- Surveyors (4%)
- Engineering Technologists and Technicians (2%)

Forestry (21%)
- Forestry Conservation (10%)
- Foremen/women: Forestry and Logging (6%)
- Forestry and Logging Labourers (3%)
- Log Inspectors (2%)

Construction Trades (10%)
- Electrical Power, Lighting and Wire Communications Equipment Installing and Repairing (4%)

Other (36%)
- Services (7%)
- Nursery Workers (6%)
- Processing (6%)
- Product Fabricating (4%)

Natural Sciences and Primary Industries

Forestry Technologies

Career Program
Community College (2 years)

Individuals entering this field obtain training in forestry management, forest research, forestry and silviculture. Entry requirements vary depending on the institution, but in general, applicants must complete mathematics, two sciences and English (French) at the senior high school level. Forestry programs are offered in all provinces except Prince Edward Island, Manitoba and Saskatchewan and are generally completed within two years, often as part of a CO-OP program combining work and studies. Men dominate this field, with women accounting for only 14% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course fell consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 25% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A smaller-than-average proportion of these graduates continued their education upon graduating, with a larger proportion than average choosing to look for a job instead. The proportion of students receiving their diploma or certificate on a part-time basis was slightly less than average, implying that full-time classroom participation was advisable in this course. Although a significantly smaller-than-average proportion of these graduates were successful in finding a job, almost all of those working found full-time jobs. Unemployment among these graduates remained fairly constant over time, with loses in full-time jobs being recouped by part-time employment.

Graduates Who Entered the Labour Force

Most forestry technology graduates find employment as life science technologists or technicians in provincial governments, and the forestry services and logging industries, while smaller numbers work in forestry conservation occupations, and as foremen/women in forestry and logging and as nursery workers. Graduates from this course generally face job competition from other community college graduates in this field or in agriculture, and from university graduates in forestry or biology.

Two years after graduation, 1986 graduates were earning about 5% more than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of 1986 forestry technology graduates increased at a rate approximating the average. Over this period a larger-than-average proportion changed jobs, usually moving from life science occupations to forestry, logging and agriculture, or from being nursery workers to forestry and logging.

The Course in Retrospect

The transition from school to work appeared to be a relatively positive experience for these graduates, as indicated by an average proportion being satisfied with their current job. This probably results from a relatively strong match between field of study and current job, and a higher-than-average salary, although a larger-than-average proportion felt overqualified for their current job. However, only one out of two 1986 forestry technology graduates indicated that they would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates tended to become disillusioned with their job, with a larger proportion feeling overqualified and fewer being content with past educational decisions. This lack of enthusiasm is probably a reflection of not only the difficulty experienced in finding a first job, but also of the continuous bouts of unemployment experienced by these graduates over their careers: five years after graduation, 1982 forestry technology graduates experienced a rate of unemployment more than three times the average for community college graduates from the same year.

Other Primary Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(4 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	235	138	134	122
% of Total Graduates at this Level	0.5	0.3	0.3	0.3

Activity of Graduates	Other Primary Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	7
Did Not Enter Labour Force	1	4
Part-time Students Already in Labour Force	3	4
Entered Labour Force	96	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	73	0	27
Average for all Fields at this Level	74	9	17

Working Full-time

Mining and Quarrying, Including Oil and Gas Fields (47%)
- Mining & Quarrying: Cutting, Handling and Loading (26%)
- Rock and Soil Drilling (8%)
- Labouring in Mining and Quarrying (8%)

Forestry and Logging (11%)
- Labouring in Forestry and Logging (6%)
- Timber Cutting and Related (5%)

Material Handling and Related (10%)
- Material Handling Equipment Operators (7%)
- Hoisting (3%)

Fishing, Trapping and Related (9%)
- Net, Trap and Line Fishing (9%)

Other (23%)

Natural Sciences and Primary Industries

Other Primary Technologies

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(4 months)

This field of study covers prospecting, the extractive technologies and fishing technologies. The admission requirements vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most students have completed their secondary school education before enrolling. These primary technology programs are offered by institutions in all provinces except Newfoundland, Manitoba, Saskatchewan and British Columbia, and typically take about four months to complete.

Graduate Trends and Projections

The number of graduates is a good indicator of the future number of people who will be competing for similar kinds of jobs. Mirroring a decline in the relative popularity of this field, the number of graduates fell from 235 in 1984 to 138 in 1987. Under current conditions, about 30% fewer students per year should complete this course than in the past.

Activity of Graduates

An average proportion of these graduates pursue their program on a part-time basis, and an above-average proportion enter the labour force upon graduating. While an average proportion find full-time jobs, only a minimal number find part-time work, contributing to a high rate of unemployment.

Graduates Who Entered the Labour Force

The majority of these graduates find work in mining and quarrying as cutters, handlers and loaders, while smaller numbers work in rock and soil drilling, mining and quarrying, net, trap and line fishing, and as labourers in forestry and timber cutting. Regardless of occupations, 1986 graduates earned almost 50% more in 1988 than the average for other graduates at this level. In general, graduates from this field face job competition from trade/vocational and community college graduates with a diploma or certificate in construction technologies or other primary technologies, such as geology and prospecting. About 40% of 1982 graduates changed jobs betwen 1984 and 1987, generally moving out of rock and soil drilling into mining, quarrying and blasting occupations. The average salary of these graduates rose slower over this period than the average for other trade/vocational graduates.

The Course in Retrospect

About an average proportion of these graduates (70%) would choose the same educational program again. A lower-than-average proportion found jobs related to their education and a larger-than-average proportion felt overqualified, while an average proportion were satisfied with their jobs. Survey data indicate that job satisfaction was higher and larger percentages were employed in 1987 than in 1984.

Other Primary Technologies

Career Program
Community College (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	369	591	366	355	349
% Women Graduates	11.4	12.5	11.5	13.1	19.7
% of Total Graduates at this Level	0.8	1.0	0.6	0.6	0.6

Activity of Graduates	Other Primary Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	23	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	4	7
Entered Labour Force	72	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	79	1	20
Average for all Fields at this Level	75	12	13

Working Full-time

Natural Sciences, Engineering and Mathematics (56%)
- Physical Sciences Technologists and Technicians (14%)
- Life Sciences Technologists and Technicians (10%)
- Draughtspersons (9%)
- Surveyors (7%)
- Geologists (6%)

Mining (10%)
- Cutting, Handling and Loading (4%)
- Labouring (4%)

Product Fabricating (5%)
- Heavy Equipment Mechanics and Repairers (4%)

Other (29%)
- Management and Administration (5%)
- Clerical (5%)
- Equipment Operators (4%)

Natural Sciences and Primary Industries

Other Primary Technologies

Career Program
Community College (2 years)

People entering this field obtain training in a wide variety of activities including geology and prospecting, drilling and extracting, other mining and petroleum technologies, fishing, hunting and trapping. Entry requirements vary depending on the program and the institution, but in general, applicants must have completed senior high school mathematics, chemistry, physics, biology and English (French) with good grades. These primary technology programs are offered in all provinces except Prince Edward Island, New Brunswick, Manitoba and Saskatchewan and can typically be finished in two years, sometimes as part of a CO-OP program combining work and study. Men dominate this field, with women accounting for only 11% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period but has since fallen to below its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 25% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

About one-quarter of these graduates immediately continued their education after graduation and a slightly larger proportion than average chose to look for a job. The proportion receiving their diploma or certificate on a part-time basis was slightly less than average, implying that full-time classroom participation was important for the successful completion of the course. A smaller-than-average proportion were successful in finding a job, but all those who did find a job were working full-time.

Graduates Who Entered the Labour Force

Most of these graduates find employment as physical science technologists or technicians in the business and professional services or mining industries, while smaller numbers work as life science technologists or technicians, or in the mining occupations. Graduates from this course generally face job competition from other community college graduates from chemical technology courses or from university graduates with an undergraduate qualification in chemistry or geology.

Two years after graduation, 1986 graduates were earning about 25% more than other graduates at this level, regardless of occupation. The proportion of 1982 graduates not working increased dramatically over time, largely the result of difficulties in the mining sector. Between the third and fifth years after graduation, salaries for these graduates increased at a slower rate than the average. Over this period a larger-than-average proportion changed jobs, usually moving between the physical and life sciences technologies or into mining occupations. About 40% of 1982 graduates from this course who were physical science technologists or technicians in 1984 were foremen/women in the mining industry by 1987.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by an average proportion being satisfied with their current job. This probably results from smaller-than-average numbers feeling overqualified and a much larger-than-average salary. Since a smaller-than-average proportion of 1986 graduates felt that their job in 1988 matched their post secondary training it is not surprising that a significantly smaller-than-average proportion would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers conditions improved for these graduates in terms of salary, job satisfaction and the match between current job and past education, although even fewer 1982 graduates would repeat the same course in 1987 than in 1984.

Resource Processing Technologies

Career Program
Community College (2 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	223	176	193	187	184
% Women Graduates	28.7	31.3	39.4	61.7	100.0
% of Total Graduates at this Level	0.5	0.3	0.3	0.3	0.3

Activity of Graduates	Resource Processing Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	5	7
Entered Labour Force	87	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	89	1	10
Average for all Fields at this Level	75	12	13

Working Full-time

Resource Processing (31%)
- Slaughtering, Meat Cutting, Canning, Curing and Packaging (16%)
- Food and Beverages: Inspecting, Testing, Grading and Sampling (5%)
- Metal Processing: Inspecting, Testing, Grading and Sampling (3%)
- Papermaking (3%)

Natural Sciences, Engineering and Mathematics (30%)
- Physical Sciences Technologists and Technicians (14%)
- Life Sciences Technologists and Technicians (5%)

Clerical (10%)
- Secretaries (3%)
- Electronic Data Processing Operators (3%)

Other (29%)
- Sales (4%)
- Construction Trades (4%)
- Equipment Operators (4%)
- Machining (3%)
- Management and Administration (3%)

Natural Sciences and Primary Industries

Resource Processing Technologies

Career Program
Community College (2 years)

People entering this field undergo training for a wide variety of activities including pulp and paper processing, processing of wood products, metal fabricating, petroleum refining and food processing. Admission requirements vary depending o the specific program and the institution but in general, applicants must complete senior high school courses in mathematics, chemistry, biology, physics and English (French) and they must pass a diagnostic mathematics test. These programs are offered in all provinces except Nova Scotia, New Brunswick, Manitoba and Saskatchewan and can generally be completed within two years, sometimes as part of a CO-OP program combining work and study. Women accounted for 39% of 1987 graduates, up from 29% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined marginally over the 1981-to-1984 period and has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

A dramatically smaller-than-average proportion of these graduates continued their education upon graduating, with a larger proportion than average choosing to look for a job instead. The proportion of students receiving their diploma or certificate on a part-time basis was lower than average, implying that full-time classroom participation was advisable in this course. A larger-than-average proportion of these graduates were successful in finding a job, almost all of whom found full-time employment.

Graduates Who Entered the Labour Force

Most resource processing technology graduates find employment in the slaughtering, meat cutting, canning, curing and packaging occupations in the retail food industry, while smaller numbers work as physical science technologists or technicians, or as food inspectors. Graduates from this course primarily face job competition from others in this course and from food processing technology graduates at the trade/vocational level.

Two years after graduation, 1986 graduates were earning about 20% more than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation the average salary of these graduates increased at a slightly slower rate than the average. A greater-than-average proportion changed jobs, usually moving among physical science technology, meat cutting and slaughtering, and inspecting occupations.

The Course in Retrospect

The transition from school to work did not appear to be a positive experience for these graduates, as indicated by a smaller-than-average proportion being satisfied with their current job. This probably results from a relatively weak match between field of study and current job and from the fact that a larger-than-average proportion feel overqualified. Only about three out of five 1986 processing technology graduates indicated that they would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers these graduates tended to become more disillusioned with their job, with a larger proportion feeling overqualified, fewer feeling their job matched their training and fewer being content with past educational decisions.

Veterinary Sciences and Medicine

Undergraduate
University (4 years)

Natural Sciences and Primary Industries

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	247	247	262	272	285
% Women Graduates	43.3	52.2	57.6	57.9	58.5
% of Total Graduates at this Level	0.2	0.2	0.2	0.2	0.2

Activity of Graduates	Veterinary Sciences and Medicine Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	14
Did Not Enter Labour Force	4	5
Part-time Students Already in Labour Force	0	20
Entered Labour Force	90	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	88	8	4
Average for all Fields at this Level	80	10	10

Working Full-time		
Medicine and Health (85%) • Veterinarians (85%)	**Clerical and Related (12%)**	**Other (3%)**

Natural Sciences and Primary Industries

Veterinary Sciences and Medicine

Undergraduate
University (4 years)

People entering this field undergo training in the concepts and principles of veterinary medicine. Enrollments are limited and admission standards are very high. Admission requirements vary depending on the university, but in general, applicants must finish high school with high grades in mathematics, biology and physics. Quebec students must have a Diploma of Collegial Studies. Most universities require applicants to provide letters of recommendation, pass a medical examination, undergo an interview, and pass aptitude tests for veterinary medicine. Preference is given to applicants with some experience working with animals. This program, which students complete on average within four years, is offered in Quebec, Ontario and Saskatchewan. Women accounted for 58% of 1987 graduates, up sharply from 43% in 1981.

Graduate Trends and Projections

The relative popularity of this course held constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Virtually no veterinary graduates completed their degrees through part-time study, implying that full-time participation was essential for successful completion of the program. Moreover, the share who decided to continue their formal studies upon graduation was sharply lower than average, an indication of strong demand in the labour market. Consequently, these graduates were much more likely to look for work immediately upon graduation and were more successful in finding it: a much higher-than-average proportion were working full-time, and the unemployment rate was less than one-half the average.

Graduates Who Entered the Labour Force

Almost all veterinary graduates find employment as veterinarians in the agricultural sector or in provincial governments. When looking for work, they only compete among themselves for available positions. Two years after graduation, 1986 graduates earned significantly more than the average income for all other graduates at this level. In addition, the average earnings of 1982 graduates grew at a much faster pace between 1984 and 1987 than the average. Virtually none of these graduates changed jobs between the third and fifth years of their careers.

The Course in Retrospect

Graduates in veterinary medicine were fairly happy with their educational experience, as a greater-than-average share reported that they would make the same educational choices again. Virtually all found jobs matching their undergraduate training, and the proportion who believed themselves to be overqualified for their jobs was significantly below average. Consequently, about 90% reported that they were satisfied with their jobs. Overall working conditions for these graduates improved in terms of job satisfaction and earnings between the third and fifth years of their careers.

Chemistry

Undergraduate
University (3 years)

Physical Sciences

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	786	712	1,040	1,077	1,123
% Women Graduates	30.3	31.9	37.5	37.7	38.0
% of Total Graduates at this Level	0.8	0.7	0.9	0.9	0.9

Activity of Graduates	Chemistry Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	32	14
Did Not Enter Labour Force	10	5
Part-time Students Already in Labour Force	10	20
Entered Labour Force	48	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	80	5	15
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences, Engineering and Mathematics (45%)	Other (28%)	Sales (11%)	Medicine and Health (9%)	Teaching (7%)
• Chemists (26%) • Physical Sciences Techologists/ Technicians (15%) • Agriculturists and Related Scientists (3%)	• Crafts and Equipment Operating (7%) • Management and Administration (5%) • Clerical and Related (5%) • Production Fabricating (5%)	• Insurance Salesperson (8%) • Commercial Travellers (3%)	• Medical Laboratory Technologists and Technicians (7%)	• Secondary School Teaching (5%) • University Teaching and Related (2%)

Physical Sciences

Chemistry

Undergraduate
University (3 years)

People entering this field study such areas of chemistry as organic chemistry, inorganic chemistry, physical chemistry, quantum chemistry and analytical chemistry. Admission requirements vary depending on the university, but in general, applicants must finish high school with high grades in mathematics, chemistry, physics and biology. Quebec students must have a Diploma of Collegial Studies. Major universities in all provinces offer degree programs in chemistry which students can generally finish in three years, sometimes through CO-OP programs combining study with work. Some universities offer certificate or diploma programs in chemistry which are shorter in duration than the full degree programs. Women accounted for 38% of 1987 graduates, compared to 30% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 35% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of chemistry graduates who complete their degrees through part-time study is about one-half the average. A significantly higher-than-average proportion (32%) continue their formal studies upon graduation, suggesting that a higher degree enhanced career prospects in this field. Consequently, chemistry graduates are much less likely than average to seek employment immediately upon graduation. Once in the labour market, they are less successful than other graduates in finding work, with an unemployment rate of 15%.

Graduates Who Entered the Labour Force

Graduates in chemistry primarily obtain work as chemists, physical sciences technologists and technicians, agriculturists, secondary school teachers, and medical laboratory technologists and technicians. Employment is distributed among the chemical industries, the health and social services sector, the federal government, the printing and publishing industry, and the educational sector. For teaching positions, chemistry graduates must obtain an education degree and then compete with university graduates from all fields, especially the sciences. For positions as chemists, they compete among themselves and with those holding master's and doctorates in chemistry. For the physical sciences technology positions, they compete with community college and university graduates in the physical sciences. Two years after graduation, 1986 graduates earned somewhat less than the average income for all other graduates at this level, regardless of occupation. Furthermore, the average earnings of 1982 graduates grew at a somewhat slower rate between 1984 and 1987 than the average. Many of these graduates changed jobs between the third and fifth years of their careers, mostly moving out of positions in physical sciences technology and university teaching to become chemists, and out of positions as chemists into management.

The Course in Retrospect

Chemistry graduates were fairly unhappy with their educational experience, as a sharply lower-than-average share reported that they would make the same educational choices again. The proportion who found jobs matching their undergraduate training and the proportion who believed themselves to be overqualified for their jobs were about average. Nonetheless, despite somewhat lower-than-average earnings, more than 90% reported that they were satisfied with their jobs. Furthermore, overall working conditions for these graduates improved significantly in terms of employment and earnings between the third and fifth years in their careers.

Chemistry

Master's
University (2 years)

Physical Sciences

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	109	126	176	174	166
% Women Graduates	22.0	28.6	31.8	32.4	32.2
% of Total Graduates at this Level	0.8	0.8	1.0	1.0	1.0

Activity of Graduates	Chemistry Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	55	6
Did Not Enter Labour Force	17	6
Part-time Students Already in Labour Force	6	33
Entered Labour Force	22	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	69	20	11
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (38%)
- Chemists (25%)
- Physical Sciences Technologists and Technicians (8%)
- Civil Engineers (5%)

Teaching (37%)
- University and Related (37%)

Managerial and Administrative (20%)
- Accountants and Auditors (10%)
- Government Inspectors and Regulatory Officers (5%)

Other (5%)

Physical Sciences

Chemistry
Master's
University (2 years)

At the master's level in chemistry, people specialize in such subfields as organic chemistry, inorganic chemistry, quantum chemistry, analytic chemistry, biochemistry and radiochemistry. Entry requirements vary depending on the university, but in general, applicants must have an undergraduate degree in chemistry or a closely related field (e.g., biochemistry or physical chemistry). Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. Graduate programs in chemistry are offered by major universities in all provinces except Newfoundland and Prince Edward Island, and can normally be completed within two years. Some universities offer graduate diploma or certificate programs that are shorter in duration but which still require applicants to have an undergraduate degree before admission. Men make up the majority of graduates, with women accounting for 32% of 1987 graduates, up from 22% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1984 period but has since risen marginally. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A dramatically smaller-than-average proportion of chemistry graduates pursued their degrees on a part-time basis, and a much larger proportion than average continued their education after receiving their master's degree. Not only were these graduates less likely than others to enter the labour force, but they were also less successful in finding full-time jobs and more likely to be unemployed.

Graduates Who Entered the Labour Force

The majority of these graduates find work as university teachers, while a smaller number work as chemists, physical sciences technologists and technicians, and civil engineers. Two years after graduation, 1986 graduates earned about 35% less than the average for all graduates at this level regardless of occupation. Furthermore, the average earnings of 1982 chemistry graduates rose significantly more slowly over the 1984-to-1987 period than the average. Between the third and fifth years of their careers, about 65% of these graduates changed jobs, generally moving out of chemistry into inspecting, testing, grading and sampling occupations, as well as into supervisory positions in chemicals, rubber, plastic and related materials processing. Graduates from this field generally face job competition from others with a degree, diploma or certificate in chemistry, chemical engineering or the chemical technologies.

The Course in Retrospect

A slightly smaller-than-average proportion of chemistry graduates would select the same educational program if the choice had to be made again. This may be a reflection of their higher level of unemployment, their lower-than-average earnings, and the fact that a smaller-than-average proportion found jobs that matched their education. A smaller-than-average proportion felt overqualified for their jobs, however, and a larger-than-average proportion were satisfied with their jobs. This situation remained stable over the 1984-to-1987 period, except that employment opportunities improved.

Chemistry

Physical Sciences

Doctorate
University (4 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	135	152	178	198	198
% Women Graduates	11.1	15.8	16.3	16.6	16.5
% of Total Graduates at this Level	7.4	8.1	7.5	7.5	7.5

Activity of Graduates	Chemistry Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	1	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	16	20
Entered Labour Force	83	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	97	0	3
Average for all Fields at this Level	88	7	5

Working Full-time

Natural Sciences (58%)
- Chemists (35%)
- Physical Sciences Technologists and Technicians (9%)
- Systems Analysts and Computer Programmers (6%)
- Life Sciences Technologists and Technicians (3%)

Teaching (30%)
- University Teaching and Related (21%)
- University Teaching (6%)
- Community College and Vocational School Teachers (3%)

Other (12%)
- Management and Administration (6%)

Physical Sciences

Chemistry

Doctorate
University (4 years)

At the doctoral level in chemistry, people specialize in such subfields as organic chemistry, inorganic chemistry, quantum chemistry, analytic chemistry, biochemistry and radiochemistry. Entry requirements vary depending on the university, but all applicants must have a master's degree in chemistry or the equivalent. Most universities require applicants to undergo an interview, provide letters of reference and demonstrate an ability to do research. Doctoral programs in chemistry, which students normally complete within four years, are offered by major universities in all provinces except Newfoundland and Prince Edward Island. Women accounted for only 16% of all doctorates awarded in 1987, up from 11% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period but has since fallen to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that about 400 more people will graduates from this course over the 1989-to-1995 period than did between 1981 and 1987.

Activity of Graduates

The proportion of chemistry doctorates who obtained their degrees on a part-time basis (already in the labour force) was somewhat lower than the average for all doctorates in all fields, suggesting that this program requires the candidate's constant attention. Upon completion of their degrees, moreover, virtually none of these doctorates continued with post-doctoral studies, implying that such studies do not enhance career prospects. The proportion of chemistry doctorates who immediately looked for work after graduating was somewhat higher than the average. These doctorates were very successful in obtaining employment, with almost all finding full-time jobs (sharply above the average) and an unemployment rate below the average. There appears to be little part-time work in this field.

Graduates Who Entered the Labour Force

Doctorates in chemistry generally obtain employment in teaching and non-teaching positions in universities, and as chemists, physical science technologists and technicians, systems analysts and computer programmers. Employment is found in the educational sector, the federal and provincial governments, and the chemical, electrical, utility and engineering service industries. These doctorates face virtually no direct competition from doctorates in other fields for university teaching positions, but they must compete with university graduates at all levels in engineering, chemistry and computer science for non-university positions. Two years after graduation, 1986 doctorates were earning somewhat less than the average. The earnings of 1982 doctorates increased at virtually the same rate as the average between 1984 and 1987. Only a few of these doctorates changed jobs between the third and fifth years of their careers, generally moving from university teaching or industry-related chemistry positions into chemistry-related management positions.

The Course in Retrospect

Chemistry doctorates made a relatively easy transition from the education system to the workforce, with virtually all reporting that they were satisfied with their current jobs. Virtually all found jobs matching their education, while the proportion who believed that they were overqualified for their jobs was only about one-third of the average for all doctorates. Nonetheless, these doctorates appeared to be somewhat unhappy with their educational experience, as the share who reported that they would make the same educational choices again, given the opportunity, was somewhat less than the average. Overall working conditions for these doctorates improved significantly in terms of earnings, job satisfaction and employment between the third and fifth years of their careers.

Computer Science

Physical Sciences

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(13 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	811	754	733	666
% of Total Graduates at this Level	1.6	1.5	1.5	1.5

Activity of Graduates	Computer Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	5	7
Did Not Enter Labour Force	3	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	90	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	78	8	14
Average for all Fields at this Level	74	9	17

Working Full-time

Clerical and Related (36%)
- Electronic Data Processing Operators (12%)
- Bookkeepers and Accounting Clerks (6%)
- Secretaries (4%)
- Receptionists (2%)

Natural Sciences, Engineering and Mathematics (24%)
- Systems Analysts and Computer Programmers (21%)

Product Fabricating (11%)
- Electronic and Related Equipment Installing and Repairing (5%)

Management and Administration (10%)
- Financial Officers (4%)

Other (19%)
- Sales (5%)
- Construction Trades (4%)
- Machining (3%)

Computer Science

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(13 months)

This field of study includes such areas of specialization as computer programming, systems design and analysis, computer technology and data processing. Entrance requirements vary according to the type of program, the institution and the province, but most students have a college diploma prior to enrollment. All provinces except New Brunswick offer this course, which usually takes about 13 months.

Graduate Trends and Projections

The number of graduates is a good indicator of the future number of persons who will be competing for similar kinds of jobs. Mirroring a decline in the relative popularity of this field of study, the number of graduates fell from 811 in 1984 to 754 in 1987. Under current conditions, about 5% fewer students per year should complete this course than in the past.

Activity of Graduates

Somewhat smaller-than-average proportions of mathematics and computer science graduates pursue their program on a part-time basis or continue their education upon graduating. Consequently, a larger-than-average proportion enter the labour force, and they are more successful in finding full-time work than the average for this level. The level of unemployment and the proportion working part-time are also lower than average.

Graduates Who Entered the Labour Force

Most of these graduates work as systems analysts, computer programmers and electronic data processors in the business service industry, while smaller numbers find employment as financial officers, bookkeepers and accounting clerks, secretaries and stenographers or other clerical staff. Regardless of occupation, mathematics and computer science graduates earned about 10% more than the average for all other graduates at this level. Graduates from this course generally face job competition from community college graduates and undergraduates with a degree, diploma or certificate in computer science. About 60% of 1982 graduates changed jobs between 1984 and 1987, mainly leaving positions as systems analysts and electronic data processing operators to become instructors and financial officers. Their average salary increased faster over this period than the average for other graduates at this level.

The Course in Retrospect

About an average proportion of these graduates would select the same educational program if the choice had to be made again. This parallels their higher-than-average earnings, the higher-than-average proportion who found jobs that matched their training, the lower-than-average proportion who felt overqualified for their work and the average level of job satisfaction. Little changed over the 1984-to-1987 period, with the exceptions that a higher percentage were employed and more felt satisfied with their jobs in 1987 than in 1984.

Physical Sciences

Computer Science

Career Program
Community College (3 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,763	4,645	3,577	3,468	3,411
% Women Graduates	46.3	47.8	35.8	29.3	16.0
% of Total Graduates at this Level	3.6	7.9	6.1	6.1	6.1

Activity of Graduates	Computer Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	25
Did Not Enter Labour Force	2	3
Part-time Students Already in Labour Force	6	7
Entered Labour Force	84	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	89	4	7
Average for all Fields at this Level	75	12	13

Working Full-time

Natural Sciences, Engineering and Mathematics (59%)
- Systems Analysts and Computer Programmers (56%)
- Engineering Technologists and Technicians (3%)

Clerical (18%)
- Electronic Data Processing Operators (10%)
- Bookkeepers and Accounting Clerks (2%)
- General Office Clerks (2%)

Management and Administration (8%)
- Accountants, Auditors and Financial Officers (2%)
- Managers: Natural Sciences, Engineering and Mathematics (2%)

Other (15%)
- Electronic Equipment Fabricating, Assembling, Installing and Repairing (4%)
- Sales (3%)

Computer Science

Career Program
Community College (3 years)

People entering this field learn various programming languages, the use of computer hardware systems, and software for scientific and business applications software including data processing, database management and word processing. Entry requirements vary depending on the institution, but in general, applicants must complete senior high school courses in mathematics and English (French) and possess some keyboarding skills; those who have completed courses in business and computer science are given preference. Most colleges also require applicants to pass mathematics, English (French) and computer aptitude tests, and to undergo an interview. These computer science programs are offered in all provinces and generally take two years to complete, sometimes as part of a CO-OP program. Women accounted for 36% of all graduates in 1987, down from 48% in 1984.

Graduate Trends and Projections

The relative popularity of this course rose dramatically over the 1981-to-1984 period but has since fallen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A much smaller-than-average proportion of these graduates continued their education upon graduating with a much larger proportion than average choosing to look for a job instead. This is fairly typical for graduates from business-related fields. The proportion of students receiving their diploma or certificate on a part-time basis approximated the average for all graduates at this level. A larger-than-average proportion of these graduates were successful in finding jobs, almost all of which were full-time.

Graduates Who Entered the Labour Force

Most computer science graduates find employment as systems analysts or computer programmers in the business and professional services industry, while smaller numbers work as electronic data processing operators or as computer equipment fabricators, assemblers, installers or repairers. Graduates from this course generally compete among themselves or against university graduates in computer science, mathematics or commerce.

Two years after graduation, 1986 graduates were earning about 10% more than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of these graduates increased at a rate approximating the average, Over this period a smaller-than-average proportion changed jobs, usually moving from systems analysis to management. Roughly 80% of 1982 graduates who were system analysts in 1984 were still systems analysts in 1987.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a greater-than-average proportion being satisfied with their current job. This probably results from a relatively strong match between field of study and current job, smaller-than-average numbers feeling overqualified, a higher-than-average salary and a lower-than-average unemployment rate. Three out of every four 1986 graduates indicated that they would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers, 1982 graduates tended to become disillusioned with their job, with a larger proportion feeling overqualified for their job and fewer being content with their past educational decisions, although larger proportions in 1987 than in 1984 were satisfied with their current job and more felt their job matched their educational background.

Computer Science

Undergraduate
University (3 years)

Physical Sciences

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,370	3,115	3,482	3,589	3,727
% Women Graduates	28.6	26.2	26.5	26.6	26.8
% of Total Graduates at this Level	1.4	2.9	2.9	2.9	2.9

Activity of Graduates	Computer Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	14
Did Not Enter Labour Force	2	5
Part-time Students Already in Labour Force	24	20
Entered Labour Force	71	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	91	3	6
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences and Engineering
(77%)
- Systems Analysts and Computer Programmers (75%)

Managerial and Administrative
(11%)
- Accountants, Auditors and Other Financial Managers (4%)
- Organization and Methods Analysts (1%)

Other
(12%)
- Clerical and Related Occupations (4%)
- Teaching and Related Occupations (3%)
- Sales (2%)

Physical Sciences

Computer Science

Undergraduate
University (3 years)

Individuals entering this field obtain training in the concepts and principles of computer hardware, software and programming, the theory of computing, scientific and business applications and business information management. Admission requirements vary depending on the university, but generally applicants must finish high school with high grades in mathematics, chemistry, physics, and English (or French). Quebec students must complete a Diploma of Collegial Studies. Universities in all provinces except Prince Edward Island offer degree programs in computer science which students typically finish within three years, sometimes as part of a program combining study with work experience. Some universities offer certificate or diploma programs in computer science which are generally shorter in duration than the full degree program. At the undergraduate level students usually combine computer science with mathematics, commerce or economics for a double major. In 1987, women accounted for 26% of all graduates.

Graduate Trends and Projections

The relative popularity of this course among students rose dramatically over the 1981-to-1984 period but has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 30% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of graduates in computer science who complete their degrees through part-time study and who are already in the labour market is slightly above the average of all other graduates at this level. Very few computer science graduates continue their formal studies upon graduation, mirroring the strong demand for their services. As a result, graduates in computer science were more likely than other graduates to look for, and obtain, employment upon graduation. About 90% of graduates found full-time employment, significantly higher than the average. A lower-than-average share found part-time work and the rate of unemployment was about one-half the average for all other graduates at this level.

Graduates Who Entered the Labour Force

Graduates in computer science primarily find jobs as systems analysts and computer programmers, while a few obtain employment in accounting, auditing, finance or other management-related occupations. Their presence is especially strong in the business services industry, education, banking and insurance and federal and provincial governments. When looking for work as systems analysts or computer programmers, they compete primarily with other university and community college graduates with qualifications in mathematics, commerce and computer science. For management and management-related positions, competition comes primarily from community college and university graduates in commerce and economics. Survey data show that, two years after graduation, graduates in computer science earn slightly more than the average for all other graduates at this level, regardless of their occupation. Their income growth is about average, and many graduates change jobs between the third and fifth years of their careers, although most of these job changes involve switching between systems analysis, computer programming and various management positions.

The Course in Retrospect

Survey data suggest that graduates in computer science were fairly happy with their educational experience, with a significantly higher-than-average share reporting that they would make the same educational choices again. Moreover, the proportion of graduates who found jobs matching their undergraduate training was significantly above average and the proportion who believed themselves to be overqualified for their jobs was significantly below the average for all graduates at this level. Consequently, more than 90% of all computer science graduates reported satisfaction with their jobs, somewhat above the average for all graduates. Overall working conditions in computer science improve significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Computer Science

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	155	230	338	335	318
% Women Graduates	11.6	18.3	21.0	21.4	21.3
% of Total Graduates at this Level	1.1	1.4	1.9	1.9	1.9

Activity of Graduates	Computer Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	8	6
Did Not Enter Labour Force	5	6
Part-time Students Already in Labour Force	29	33
Entered Labour Force	58	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	92	5	3
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (72%)	Teaching (11%)	Managerial and Administrative (8%)	Clerical and Related (2%)	Other (7%)
• Systems Analysts and Computer Programmers (62%) • Mechanical Engineers (4%) • Electrical Engineers (4%)	• University (6%) • Secondary School (2%)	• Organization Methods Analysts (2%) • Service Managers (2%) • General Managers (2%)	• Electronic Data Processing Operators (2%)	

Computer Science

Master's
University (2 years)

At the graduate level, the computer science student can specialize in a variety of areas, such as the theory of computing, database management systems, scientific and business applications, programming, computer hardware and software design. Admission requirements vary depending on the institution, but in general, applicants must have an undergraduate honours degree in computer science or in a closely related field of study (e.g., mathematics or engineering). Most universities require students to undergo an interview, provide letters of reference and pass graduate admission tests. This program, generally lasting two years, is offered in all provinces except Prince Edward Island. Only the province of Quebec offers a graduate diploma or certificate as well as a degree in this field of study. Since the early 1980s, this program has been attracting more and more women, with the proportion of female graduates rising from 12% in 1981 to 21% in 1987.

Graduate Trends and Projections

The relative popularity of this course among students has risen consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 30% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A slightly smaller proportion of computer science graduates than other master's graduates pursued their degrees on a part-time basis. About an average proportion of these graduates continued their education after receiving their degrees. Not only were computer science graduates more likely to enter the labour market than other master's graduates, but they were also more likely to be working full-time and much less likely to be unemployed.

Graduates Who Entered the Labour Force

The majority of computer science graduates work as systems analysts and computer programmers in the business service industry, while a smaller number find employment as electrical or mechanical engineers (previously received an undergraduate degree in these fields) or as university teachers. Two years after graduating, 1986 computer science graduates earned almost 5% more than the average of all other graduates at this level. The average salary of 1982 computer science graduates rose at a faster pace over the 1984-to-1987 period than did that of all other graduates at this level. About 70% of these graduates changed jobs between the second and fifth years of their careers, generally moving out of systems analysis and computer programming into management. Graduates from this field of study generally encounter job competition from undergraduates with a degree, diploma or certificate in computer science and from community college graduates with a diploma in computer science.

The Course in Retrospect

Computer science graduates felt positive about their education, with approximately 85% indicating they would make the same educational choices if the decision had to be made again. This parallels their great success in finding full-time work and their higher-than-average earnings, although an average proportion of these graduates felt overqualified for their jobs. This situation remained stable between the third and fifth years of their career.

Geology

Undergraduate
University (4 years)

Physical Sciences

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	475	929	679	705	736
% Women Graduates	19.4	19.9	21.8	21.9	22.1
% of Total Graduates at this Level	0.5	0.9	0.6	0.6	0.6

Activity of Graduates	Geology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	19	14
Did Not Enter Labour Force	3	5
Part-time Students Already in Labour Force	15	20
Entered Labour Force	63	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	76	4	20
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences, Engineering and Mathematics (64%)
- Geologists (38%)
- Physical Sciences Technologists and Technicians (11%)
- Systems Analysts and Computer Programmers (9%)
- Draughting (3%)

Teaching and Related (12%)
- University Teaching and Related (9%)
- Secondary School Teaching (3%)

Managerial and Administrative (6%)
- Management Occupations in Natural Sciences and Engineering (4%)
- Accountants, Auditors and Other Financial Officers (2%)

Other (18%)
- Sales (7%)
- Farming and Related (4%)
- Product Fabricating (4%)

Geology

Undergraduate
University (4 years)

Individuals entering this field undergo training in such areas as geology, geochemistry, mineralogy, geodynamics and crystallography. Entry requirements vary depending on the university, but in general, applicants must finish high school with good grades in mathematics, physics and chemistry. Quebec students must possess a Diploma of Collegial Studies. Universities in all provinces except Prince Edward Island offer degree programs in geology which students can normally complete within four years, sometimes as part of a CO-OP program combining study with work. Men dominate this field, with women accounting for only 22% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period but has since fallen to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of graduates in geology who completed their degrees through part-time study and who were already in the labour market was less than the average. A somewhat higher-than-average share continued their formal studies upon graduation, suggesting that a higher degree enhances career prospects in this field. These graduates were just as likely as others to look for employment immediately upon graduation, but they were somewhat less successful in finding it. About three out of four found full-time employment, slightly below the average for all graduates, while a significantly lower-than-average share found part-time work. Consequently, their rate of unemployment was twice the average.

Graduates Who Entered the Labour Force

Graduates in geology find jobs primarily as geologists, physical sciences technologists and technicians, systems analysts, computer programmers, university teaching assistants and managers in the natural sciences and engineering fields. Employment is distributed among the petroleum and natural gas industry, the mining and related mineral extraction service industries, the educational sector, the business services industry and the provincial governments. When looking for work as geologists, these graduates compete with university graduates in geology at all levels for available jobs. For the physical sciences technology jobs, they compete with university graduates in engineering fields, physics and the agricultural sciences. For the positions as systems analysts and computer programmers, they compete with community college and university graduates in computer science, mathematics and commerce.

Two years after graduation, 1986 graduates earned about the same as other graduates at this level, regardless of occupation. The average earnings of 1982 graduates, however, grew at a somewhat slower rate between 1984 and 1987 than the average. Many of these graduates changed jobs between the third and fifth years of their careers, shifting out of positions as geologists into jobs as physical sciences technologists or into other occupations in the physical sciences.

The Course in Retrospect

More than 80% of all geology graduates reported that they were satisfied with their jobs, although this was somewhat below the average for all graduates. The proportion who found jobs matching their undergraduate training was about average and the proportion who believed themselves to be overqualified for their jobs was below the average. These graduates were fairly unhappy with their educational experience, as the share who reported that they would make the same educational choices again was sharply lower than average, perhaps because career and income prospects did not meet expectations. Overall working conditions for these graduates improved significantly in terms of earnings but remained fairly stable in terms of employment and job satisfaction between the third and fifth years of their careers.

Physical Sciences

Geology
Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	137	206	222	220	209
% Women Graduates	16.1	19.4	27.5	28.0	27.8
% of Total Graduates at this Level	1.0	1.3	1.3	1.3	1.3

Activity of Graduates	Geology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	26	6
Did Not Enter Labour Force	12	6
Part-time Students Already in Labour Force	16	33
Entered Labour Force	46	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	79	7	14
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (90%)
- Geologists (70%)

Managerial and Administrative (10%)
- Management Occupations, Natural Sciences and Engineering (3%)
- Inspectors and Regulatory Officers (3%)

Physical Sciences

Geology

Master's
University (2 years)

Individuals at the master's level in geology specialize in such subfields as crystallography, geochemistry, marine geology, petrology and ore mineralogy. Admission requirements vary depending on the university, but in general, applicants must have an undergraduate degree in geology or a closely related field (e.g., physics or mathematics). Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. These programs are offered in all provinces except Prince Edward Island and can be completed within two years, sometimes as part of a CO-OP program combining study with work. Some universities offer graduate diploma or certificate programs that are shorter in duration but which still require applicants to have an undergraduate degree before admission. Men make up the majority of graduates, although women's representation increased to 27% in 1987 from 16% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period but has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly smaller-than-average proportion of geology graduates pursued their degrees on a part-time basis, but almost four times the average proportion continued their education after receiving their master's degrees, underlining the advantage of a doctorate when competing for a job. Not only were these graduates less apt to look for employment than others at this level, but they were also somewhat less successful in finding it, leading to an unemployment rate that was twice the average.

Graduates Who Entered the Labour Force

The majority of these graduates work as geologists in the oil and gas industry, while a smaller number work as professional engineers. Two years after graduation, 1986 graduates earned just about the average for all graduates at this level, regardless of occupation. Furthermore, the earnings of 1982 graduates rose at about the average rate over the 1984-to-1987 period. Between the third and fifth years of their careers, about three-quarters of these graduates changed jobs, generally moving out of geology into meteorology and management. Graduates from this field generally encounter job competition from undergraduates with a degree, diploma or certificate in geology.

The Course in Retrospect

An average proportion of geology graduates would select the same educational program if the choice had to be made again. While earnings were slightly lower than average, a larger-than-average proportion found jobs that were related to their education, a much lower-than-average proportion felt overqualified for their jobs and all were satisfied with their current jobs. This situation did not change much between the third and fifth years of their careers, except that the proportion employed full-time decreased somewhat.

Mathematics

Physical Sciences

Undergraduate
University (4 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,453	1,774	2,332	2,422	2,529
% Women Graduates	39.3	35.6	36.0	36.2	36.5
% of Total Graduates at this Level	1.5	1.6	1.9	2.0	2.0

Activity of Graduates	Mathematics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	17	14
Did Not Enter Labour Force	5	5
Part-time Students Already in Labour Force	13	20
Entered Labour Force	65	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	88	6	6
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences and Engineering (42%)
- Systems Analysts and Computer Programmers (27%)
- Mathematicians, Statisticians and Actuaries (12%)

Managerial and Administrative (21%)
- Accountants, Auditors and Other Financial Officers (15%)

Teaching and Related (14%)
- Secondary School Teachers (6%)
- Elementary and Kindergarten Teachers (4%)
- Community College and Vocational School Teachers (2%)

Other (23%)
- Clerical (8%)
- Sales (5%)
- Construction Trades (3%)

Physical Sciences

Mathematics

Undergraduate
University (4 years)

Individuals entering the field of mathematics study the concepts and principles of the mathematical sciences including applied mathematics, actuarial mathematics, and statistics. Entry requirements vary with the university but, in general, applicants must finish high school with good grades in mathematics, physics, chemistry and biology. (Quebec students must have a Diploma of Collegial Studies.) Universities in all provinces offer degree programs in mathematics, which students can complete within four years, sometimes as part of CO-OP programs combining study and work. Men made up the majority of graduates but women accounted for 36% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course among students rose slightly over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, the number of new graduates from this course is expected to be about 35% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of graduates who completed their degrees through part-time study (that is, they were already in the labour market) was about two-thirds the average of all other graduates at this level. A somewhat higher-than-average share of graduates tended to continue their formal studies upon graduation, suggesting that a higher degree is necessary to succeed in this field. Once in the labour market, these graduates were somewhat more successful than other graduates in finding employment. About nine out of ten 1986 graduates found full-time employment, significantly higher than the average for all graduates. A lower-than-average share of the remaining mathematics graduates found part-time work. The rate of unemployment was slightly more than one-half the average for all other graduates at this level.

Graduates Who Entered the Labour Force

Graduates in mathematics find jobs as systems analysts, computer programmers, mathematicians, statisticians, actuaries, elementary and secondary school teachers, accountants, auditors and other financial officers across most industries but are especially concentrated in education, business services, insurance, banking and the federal government. For teaching positions, mathematics graduates must obtain an education degree and then compete with other university graduates from all fields, but especially in the sciences. When looking for work as mathematicians, statisticians, actuaries or systems analysts, the graduate must compete with community college and university graduates in commerce and computer sciences. For accounting and auditing positions, graduates must compete with community college and university graduates in commerce and economics. Regardless of occupation, 1986 mathematics graduates earned about the same average income in 1988 as all other graduates at this level. The average earnings of 1982 graduates in mathematics, however, grew at a significantly slower rate between 1984 and 1987 than the average earnings of all other graduates. Many of these graduates changed jobs between the third and fifth years of their careers, mostly from systems analysts, computer programmers and teaching jobs into management, especially in accounting, auditing and other financial management.

The Course in Retrospect

Graduates in mathematics were somewhat unhappy with their educational experience, as a lower-than-average share of these graduates reported that they would make the same educational choices again. Moreover, the proportion of mathematics graduates who found jobs matching their undergraduate training was only about average and the proportion who believed themselves to be overqualified for their jobs was above the average for all graduates at this level. Nonetheless, more than 90% reported that they were satisfied with their jobs, somewhat above the average for all graduates. Furthermore, overall working conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Physical Sciences

Mathematics

Master's
University (2 years)

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	131	205	191	189	180
% Women Graduates	23.7	24.4	27.2	27.7	27.6
% of Total Graduates at this Level	0.9	1.3	1.1	1.1	1.1

Activity of Graduates	Mathematics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	26	6
Did Not Enter Labour Force	15	6
Part-time Students Already in Labour Force	17	33
Entered Labour Force	42	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	65	28	7
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (63%)
- Mathematicians (38%)
- Meteorologists (8%)
- Industrial Engineers (8%)

Teaching (37%)
- Community College and Vocational (17%)
- University and Related (15%)
- Post-Secondary (5%)

Mathematics

Master's
University (2 years)

Individuals studying mathematics at the master's level specialize in such areas as probability and statistics, actuarial mathematics, mathematical software and programming, analytical number theory and linear programming. Entry requirements vary depending on the university, but in general, applicants must have an undergraduate degree in mathematics or a closely related field (e.g., physics, computer science). Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. The mathematics program is offered by most universities throughout Canada except those in Prince Edward Island and New Brunswick and can be completed within two years. Men make up the majority of graduates, with women accounting for 27% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period but has since fallen almost to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about the same over the 1989-to-1995 period as it was between 1981 and 1987.

Activity of Graduates

A significantly smaller-than-average proportion of mathematics graduates pursued their degrees on a part-time basis, and a much larger-than-average proportion continued their education after receiving their degree. Not only were these graduates less apt to enter the labour force than others at this level, but those who did were less likely to find full-time work and were three times more likely to be working part-time.

Graduates Who Entered the Labour Force

The majority of mathematics graduates obtain work as mathematicians, while a smaller number work as community college or university teachers, industrial engineers and meteorologists. Two years after graduation, regardless of occupation, 1988 graduates earned about 20% less than the average for all graduates at this level. Furthermore, the earnings of 1982 graduates rose more slowly over the 1984-to-1987 period than the average. Between the third and fifth years of their careers, almost 70% of these graduates had changed jobs, generally moving out of systems analysis and computer programming into mathematics, statistics, actuarial science and management.

Graduates from this field encounter competition for jobs from those with a degree, diploma or certificate in mathematics or commerce.

The Course in Retrospect

A smaller-than-average proportion of mathematics graduates would select the same educational program if the choice had to be made again. This may reflect their lower-than-average earnings and the fact that a larger-than-average proportion felt overqualified for their jobs. Nonetheless, a higher-than-average proportion found jobs that matched their education and all expressed satisfaction with their jobs. This situation changed little between 1984 and 1987, except that employment opportunities improved.

Mathematics

Doctorate
University (4 years)

Physical Sciences

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	61	55	81	90	90
% Women Graduates	11.5	12.7	13.6	13.8	13.8
% of Total Graduates at this Level	3.4	2.9	3.4	3.4	3.4

Activity of Graduates	Mathematics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	10	20
Entered Labour Force	90	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	90	5	5
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching and Related (91%)
- University Teaching (75%)
- University Teaching and Related (16%)

Other (9%)
- Natural Sciences, Engineering and Mathematics (9%)

Physical Sciences

Mathematics

Doctorate
University (4 years)

The doctoral course in mathematics includes programs in such areas as applied mathematics, applied statistics and actuarial science. The prerequisites for admittance vary depending upon the institution, but, in general, applicants must have completed a master's degree in mathematics or the equivalent with a high standing, demonstrate ability in mathematical research, and be able to read mathematical articles in more than one language (French, German, or Russian). Doctorates in mathematics are awarded by major universities in all provinces except Newfoundland, Prince Edward Island and Saskatchewan. Students normally complete the program requirements in four years, sometimes as part of a CO-OP program combining study with work experience. While men dominate this field, women were awarded 14% of mathematics doctorates in 1987.

Graduate Trends and Projections

This course declined in relative popularity over the 1981-to-1984 period, but has since returned to the 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, the system is expected to produce about 230 more graduates from this course over the 1989-to-1995 period than it did between 1981 and 1987.

Activity of Graduates

The proportion of mathematics doctorates who obtained their degrees on a part-time basis (already in the labour force) was about one-half the average for all doctorates in all fields, suggesting that the difficult nature of the program required candidates to devote most of their time to studies. Upon completion of their doctorates, almost none continued with post-doctoral studies, indicating that such studies did not really enhance job prospects. As a result, the proportion who immediately looked for work upon the completion of their studies was sharply higher than the average for all doctorates.

Doctorates in mathematics were fairly successful in obtaining employment with nine out of ten finding full-time jobs, somewhat above the average for all doctorates. Nonetheless a few could not find employment, so their rate of unemployment equaled the average for all doctorates in all fields.

Graduates Who Entered the Labour Force

Doctorates in mathematics obtain employment as university teachers or in related university non-teaching positions in the educational sector. Normally they face little direct competition from doctorates in other fields for university teaching positions. In 1988, the average earnings of 1986 doctorates in mathematics were significantly lower than the average earnings of all doctorates. However, the average earnings of 1982 mathematics doctorates increased at a somewhat faster rate between 1984 and 1987 than the average earnings of all other doctorates. Only a few changed jobs between the third and fifth years of their careers, generally moving from university teaching into positions as practicing mathematicians or statisticians.

The Course in Retrospect

The transition from the education system into the work force was not an overly positive experience for these doctorates, as a lower-than-average proportion reported satisfaction with their current jobs. This may reflect more the nature and content of their jobs and their lower-than-expected earnings because other survey indicators were generally positive. All found jobs matching their education and a lower-than-average share believed that they were overqualified for their jobs. Consequently, they appeared to be fairly satisfied with their educational experience, as those mathematicians who reported that they would make the same educational choices again, if given the opportunity, was significantly above the average. Overall working conditions for mathematics doctorates improved significantly in terms of earnings, employment and job satisfaction between the third and fifth years of their careers.

Physics

Undergraduate
University (4 years)

Physical Sciences

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	366	538	682	707	738
% Women Graduates	11.2	12.5	12.8	12.8	12.9
% of Total Graduates at this Level	0.4	0.5	0.6	0.6	0.6

Activity of Graduates	Physics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	47	13
Did Not Enter Labour Force	8	6
Part-time Students Already in Labour Force	13	20
Entered Labour Force	32	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	67	19	14
Average for all Fields at this Level	80	10	10

Working Full-time

Natural Sciences, Engineering and Mathematics (28%)	Teaching (22%)	Managerial and Administrative (16%)	Sales (10%)	Clerical (11%)	Other (13%)
• Systems Analysts, Computer Programmers and Related (12%) • Engineering Technologists and Technicians (4%) • Life Sciences Technologists and Technicians (4%)	• University Related (9%) • Secondary School (9%) • Other Post-Secondary (4%)	• Sales and Advertising Managers (9%) • Administrators in Medicine and Health (4%)	• Electrical/Electronic Product Fabricating and Installing (7%)	• Electronic Data Processing Equipment Operators (9%)	

Physical Sciences

Physics

Undergraduate
University (4 years)

People entering this field may study a broad array of subjects, such as mathematical physics, astronomy, astrophysics, heat and thermodynamics, mechanics and the properties of matter, wave motion and optics, electricity and magnetism, and quantum mechanics. Admission requirements vary depending on the university, but in general, students must have a high school diploma with high grades in mathematics, physics, chemistry and biology. Quebec students must have a Diploma of Collegial Studies. These programs, which students can generally complete within four years, are offered by universities in all provinces. The percentage of women graduating from this field rose from 11% in 1981 to 13% in 1987.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 35% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of these graduates who immediately continued their education after receiving their degree was about three times larger than the average, underlining the advantage of a higher degree when competing for a job in this field. The proportion who pursued their degree on a part-time basis was well below average. A much smaller-than-average proportion entered the labour force, and while an approximately-average proportion found jobs, a smaller-than-average proportion were working full-time.

Graduates Who Entered the Labour Force

Physics graduates find work in a great array of occupations, such as systems analysts, secondary school and university-related teachers, life sciences and engineering technologists and technicians, meteorologists, and sales and advertising managers. Regardless of occupation, 1986 graduates earned about 20% less than the average for other graduates at this level in 1988. In general, graduates from this field of study face job competition from community college and university graduates at the bachelor's and master's levels in computer science, physics or related fields. About 55% of 1982 graduates changed jobs over the 1984-to-1987 period, generally moving out of teaching into meteorology and management in the natural sciences. Their average salary increased more slowly during this time than the average for other graduates at this level.

The Course in Retrospect

A smaller-than-average proportion of these graduates (60%) would follow the same educational route again, reflecting the fact that lower-than-average proportions found work related to their education or were satisfied with their jobs, and that salaries were also lower-than-average. A lower-than-average proportion felt overqualified for their jobs, however, and between the third and fifth years of their careers, conditions improved for 1982 graduates: the levels of job satisfaction and full-time employment, as well as the match between education and employment, all increased, while the proportion feeling overqualified for their job decreased further.

Physics

Master's
University (2 years)

Physical Sciences

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	149	174	197	195	185
% Women Graduates	10.7	6.9	11.7	11.9	11.8
% of Total Graduates at this Level	1.0	1.1	1.1	1.1	1.1

Activity of Graduates	Physics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	53	6
Did Not Enter Labour Force	18	6
Part-time Students Already in Labour Force	8	33
Entered Labour Force	21	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	63	16	21
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (61%)
- Systems Analysts and Computer Programmers (13%)
- Meteorologists (10%)
- Physical Sciences Technologists and Technicians (9%)
- Electrical Engineers (6%)
- Physicists (5%)

Teaching (28%)
- University and Related (14%)
- Other Post-Secondary School (5%)
- Community College and Vocational School (5%)

Managerial and Administrative (11%)
- Management Occupations, Natural Sciences and Engineering (6%)
- Organization and Methods Analysts (5%)

Physics

Master's
University (2 years)

Individuals at the graduate level in physics can focus on such subfields as astronomy, quantum mechanics, aeronautics biophysics, condensed matter physics, optics and particle physics, geophysics, and mathematical, medical, molecular, nuclear, plasma and space physics. Entry prerequisites vary depending on the university, but in general, applicants must have an undergraduate degree in physics or a closely related field of study (e.g., mathematics or engineering). Most universities require applicants to undergo an interview, provide letters of reference and pass graduate admission tests. The master's program in physics is offered by major universities in all provinces except Prince Edward Island and can generally be completed within two years, sometimes as part of a CO-OP program combining work with study. Some universities offer graduate diploma or certificate programs that are shorter in duration but which still require applicants to have an undergraduate degree before admission. The share of women in this field reached 12% in 1987.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1984 period and has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

About nine times as many physics graduates as other master's students continued their education after receiving their degrees, and a much smaller-than-average proportion pursued their degree on a part-time basis. Consequently, very few physics graduates at this level were likely to enter the labour market. Among those who did look for a job, unemployment was greater than the average for other graduates at this level.

Graduates Who Entered the Labour Force

The majority of these graduates find work in the natural sciences and as university teachers, while a smaller number work as other post-secondary school teachers, systems analysts, computer programmers, meteorologists, physical science technologists and technicians, and in managerial and administrative positions. Two years after graduation, regardless of occupation, 1986 graduates were earning about 30% less than the average for all graduates at this level. Over the 1984-to-1987 period, the average earnings of 1982 physics graduates rose slightly more slowly than the earnings of other master's graduates. Between the third and fifth years of their career, about 45% of these graduates change jobs, generally moving between occupations in physical and life sciences, and moving out of systems analysis into university teaching. Graduates from this field generally face job competition from other graduates with a master's degree in this or a related field of study.

The Course in Retrospect

An almost-average proportion of physics graduates would select the same educational program if the choice had to be made again. This may reflect the fact that an average proportion found jobs that matched their education, a lower-than-average proportion felt overqualified for their jobs and an average proportion were satisfied with their current job. This situation improved slightly from the second to the fifth year of these graduates' careers, as the proportion who would choose the same course again and the proportion who found a job related to their education both rose, while the proportion who felt overqualified for their jobs declined.

Physics

Doctorate
University (4 years)

Physical Sciences

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	78	85	101	112	112
% Women Graduates	7.7	8.2	5.0	5.0	5.0
% of Total Graduates at this Level	4.3	4.5	4.2	4.2	4.2

Activity of Graduates	Physics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	0	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	6	20
Entered Labour Force	94	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	94	3	3
Average for all Fields at this Level	88	7	5

Working Full-time

Natural Sciences, Engineering and Mathematics (48%)
- Physicists (12%)
- Chemists (10%)
- Nuclear Engineers (10%)

Teaching (42%)
- University and Related (42%)

Managerial and Administrative (10%)
- Sales and Advertising Managers (5%)

Physical Sciences

Physics

Doctorate
University (4 years)

People studying physics at the doctoral level specialize in such subfields as astronomy, aeronautics, quantum mechanics, biophysics, optics and particle physics, condensed matter physics, and mathematical, medical, molecular, nuclear, plasma and space physics. Admission prerequisites vary depending on the university, but all applicants must have a master's degree in physics or engineering or the equivalent. Most universities require applicants to undergo an interview, provide letters of reference and demonstrate the ability to do research. Doctoral programs in physics, which students generally complete within four years, are offered by major universities in all provinces except Prince Edward Island. In 1987, women accounted for 5% of these graduates, although this figure should increase in the future, since more women are concentrating in this area at the undergraduate level.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period but has since fallen to about its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 35% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Relative to other graduates at this level, a larger-than-average proportion enter the labour force immediately after completing their degree and are more successful in finding full-time work. A lower-than-average proportion were unemployed, and a much smaller-than-average proportion pursued their degrees on a part-time basis.

Graduates Who Entered the Labour Force

The majority of these graduates find work as university teachers and physicists at educational institutions, while smaller numbers work as chemists, nuclear engineers, and physical sciences technologists and technicians. Regardless of occupation, 1986 graduates earned about 10% less than the average for other doctoral graduates in 1988. Generally, graduates from this field of study face job competition from master's graduates with a degree, diploma or certificate in engineering or physics. About 60% of 1982 graduates changed jobs between 1984 and 1987, generally moving out of systems analysis and related occupations into university teaching. The average salary of 1982 graduates rose more slowly over the 1984-to-1987 period than the average for other graduates at this level.

The Course in Retrospect

A larger-than-average proportion of these graduates (80%) would choose the same educational program if the decision has to be made again. This stands in contrast to the about-average proportion who found work related to their education, the larger-than-average proportion who felt overqualified for their work, the lower-than-average proportion who were satisfied with their jobs and the lower-than-average salary. This situation remained unchanged over the 1984-to-1987 period, except that the percentage who felt overqualified for their work declined dramatically.

Economics

Undergraduate
University (3 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	2,443	3,508	4,114	4,272	4,461
% Women Graduates	27.9	30.9	32.2	32.3	32.6
% of Total Graduates at this Level	2.5	3.2	3.4	3.5	3.5

Activity of Graduates	Economics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	17	14
Did Not Enter Labour Force	5	5
Part-time Students Already in Labour Force	20	20
Entered Labour Force	58	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	81	6	13
Average for all Fields at this Level	80	10	10

Working Full-time

Managerial and Administrative (44%)
- Accountants, Auditors and Other Financial Officers (18%)
- Sales and Advertising Managers (4%)
- Financial Managers (4%)

Clerical and Related (22%)
- Insurance, Bank and Other Office Clerks (5%)
- Bookkeepers and Accounting Clerks (4%)
- Other Clerical and Related (3%)
- Secretaries and Stenographers (2%)

Sales (12%)
- Supervisors: Sales Occupations Services (3%)
- Securities, Sales Agents and Traders (2%)
- Commodities and Sales Clerks and Salespersons (2%)

Social Sciences (6%)
- Economists (6%)

Other (16%)

Social Sciences and Services

Economics

Undergraduate
University (3 years)

People entering this field study the allocation of scarce resources to satisfy human wants, focussing on such areas as business and consumer economics, labour economics, banking and monetary economics, international trade, agricultural economics, mathematical economics and econometrics. Admission requirements vary depending on the university, but in general, applicants must finish high school with good grades, especially in English (French) and mathematics. Quebec applicants must have a Diploma of Collegial Studies. Universities throughout Canada offer degree programs in economics which students generally complete in about three years, sometimes as part of a CO-OP program combining school and work. Some institutions offer diploma or special certificate programs that are shorter in duration. Women accounted for 32% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose significantly over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 25% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of economics graduates who completed their degrees through part-time study was about average, although a somewhat higher-than-average share continued their studies after graduation. These graduates were somewhat less apt to look for work immediately upon graduation; while the proportion finding full-time work was about average, the proportion working part-time was much smaller than average, leading to a slightly higher-than-average unemployment rate.

Graduates Who Entered the Labour Force

Most economics graduates find managerial jobs in accounting, sales and advertising management, financial management and bookkeeping, and clerical jobs in insurance and finance. Employment is found across all industries, but especially in banking, business services and the federal government. Only a small proportion of economics graduates at this level obtain jobs as economists.

When looking for work, these graduates compete primarily with university and community college graduates in commerce, mathematics and computer science. Two years after graduation, 1986 graduates earned slightly more than the average income for all graduates at this level, regardless of occupation. Moreover, the average earnings of 1982 graduates grew at a much faster pace over the 1984-to-1987 period than the average. A large number of these graduates changed jobs between the third and fifth years of their careers, but most only moved between different management and finance positions, or moved from sales positions into management.

The Course in Retrospect

Individuals with undergraduate economics degrees were fairly unhappy with their educational experience, as only one in every two reported that they would make the same educational choices again, a far lower level of satisfaction than the average. Moreover, the proportion who found jobs matching their undergraduate training was significantly below average and the proportion who believed themselves to be overqualified for their jobs was somewhat above average. Nonetheless, with their higher-than-average earnings, almost 90% reported that they were satisfied with their jobs, virtually the same as the average. Furthermore, overall working conditions for these graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Economics

Master's
University (2 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	373	361	431	427	405
% Women Graduates	22.8	26.9	29.7	30.2	30.1
% of Total Graduates at this Level	2.6	2.2	2.4	2.4	2.4

Activity of Graduates	Economics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	13	6
Did Not Enter Labour Force	7	6
Part-time Students Already in Labour Force	18	33
Entered Labour Force	62	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	83	7	10
Average for all Fields at this Level	84	9	7

Working Full-time

Social Sciences (40%)
- Economists (38%)

Managerial and Administrative (33%)
- Accountants and Auditors (16%)
- Organization Methods Analysts (6%)
- Sales and Advertising Management (3%)
- Management in Social Science (3%)

Teaching (11%)
- University and Related (6%)
- Community College and Vocational (2%)
- Elementary and Secondary (2%)

Other (16%)

Social Sciences and Services

Economics

Master's
University (2 years)

At the graduate level in economics, people can focus on such fields as econometrics, labour economics, industrial organization, monetary economics, international trade theory, public finance and taxation. Entry prerequisites vary depending on the university, but in general, applicants must have an undergraduate honours degree in economics or a closely related field of study (e.g., mathematics or computer science). Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference. Major universities in all provinces except Newfoundland and Prince Edward Island provide graduate programs in economics which can generally be completed within two years, sometimes as part of a CO-OP program combining study and work. A few universities offer graduate diploma or certificate programs that are shorter in duration but which require applicants to possess an undergraduate degree. Women accounted for 30% of graduates in 1987, up from 23% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period but has since risen. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

Dramatically fewer economics graduates than other master's graduates pursued their degrees on a part-time basis. Both the proportion who continued their education after receiving their degree and the proportion who entered the labour force were above average. The employment pattern of these graduates was about the same as that of all master's graduates, although unemployment was slightly higher than average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as economists in government, while smaller numbers work as accountants, auditors, university teachers and organization and methods analysts. Regardless of occupation, these graduates earned somewhat less than the average for other master's graduates. Graduates from this field of study generally encounter job competition from undergraduates with a degree, diploma or certificate in commerce or economics. About 45% of 1982 graduates changed jobs between 1984 and 1987, usually leaving positions as economists for jobs as university teachers and financial officers. The average salary of these graduates increased much faster over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

A somewhat smaller proportion of economics graduates (65%) than other master's graduates would select the same educational program if the choice had to be made again. This may reflect the fact that the proportion of graduates who found jobs related to their educational training was lower-than-average, as were job satisfaction and earnings. However, a much smaller-than-average proportion felt overqualified for their job. This situation changed between the third and fifth years of these graduates' careers, with dramatically fewer being unemployed or feeling overqualified.

Economics

Doctorate
University (5 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	61	58	62	69	69
% Women Graduates	11.5	8.6	19.4	19.7	19.6
% of Total Graduates at this Level	3.4	3.1	2.6	2.6	2.6

Activity of Graduates	Economics Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	23	20
Entered Labour Force	75	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	95	5	0
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching
(100%)
- University Teaching (100%)

Social Sciences and Services

Economics

Doctorate
University (5 years)

At the doctoral level in this field, individuals specialize in such subjects as econometrics, labour economics, industrial organization, monetary economics, international trade theory, public finance and taxation. Entry requirements vary depending on the university, but all applicants must have a master's degree in economics and demonstrate an ability to do economic research. Most universities require applicants to undergo an interview and provide letters of reference. These doctorates are offered throughout Canada except in Newfoundland, Prince Edward Island, New Brunswick and Alberta and are generally completed within five years. Women obtained 19% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course declined consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of economics doctorates who obtained their degrees through part-time study was slightly above the average for doctorates in all fields. Upon graduation, most entered the labour market, with only a very small number pursuing post-doctoral studies. Virtually all were able to find employment, and more than 90% took full-time jobs.

Graduates Who Entered the Labour Force

Economics doctorates find work primarily as university professors, for which positions they compete almost exclusively among themselves. Two years after graduation, they earned approximately the same income as all other doctorates on average. The average earnings of 1982 doctorates, however, grew at a much slower rate than the average between 1984 and 1987. Virtually none of these graduates changed jobs over the 1984-to-1987 period.

The Course in Retrospect

These doctorates were very happy with their educational experience, as about 90% substantially above the average reported that they would make the same educational choices again, if given the opportunity. All found jobs that matched their training and a substantially lower-than-average proportion believed that they were overqualified for their jobs. Nonetheless, the proportion who reported satisfaction with their jobs was only about average. Overall work conditions for these doctorates, already good, improved somewhat over the 1984-to-1987 period in terms of employment and earnings, but deteriorated slightly in terms of job satisfaction.

Geography

Undergraduate
University (4 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,643	1,561	1,669	1,734	1,812
% Women Graduates	37.7	37.5	36.2	36.4	36.8
% of Total Graduates at this Level	1.7	1.4	1.4	1.4	1.4

Activity of Graduates	Geography Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	19	14
Did Not Enter Labour Force	8	5
Part-time Students Already in Labour Force	17	20
Entered Labour Force	56	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	82	8	10
Average for all Fields at this Level	80	10	10

Working Full-time

Managerial and Administrative (15%)
- Government Inspectors and Regulatory Officers (4%)
- Sales and Advertising Managers (2%)
- General Managers and Other Senior Officers (2%)
- Accountants, Auditors and Other Financial Managers (2%)

Natural Sciences, Engineering and Mathematics (14%)
- Biologists and Related Scientists (3%)
- Physical Sciences Technologists & Technicians (2%)
- Life Sciences Technologists and Technicians (2%)

Teaching and Related (12%)
- University Teaching and Related (5%)
- Secondary School Teachers (5%)
- Elementary and Kindergarten Teachers (2%)

Other (59%)
- Clerical (18%)
- Sales (12%)
- Services (7%)
- Construction Trades (2%)

Social Sciences and Services

Geography

Undergraduate
University (4 years)

Individuals entering this field can study such areas as biogeography, cartography, cultural and historical geography, environmental geography and physical geography. Entry requirements vary depending on the university, but in general, applicants must finish high school with good grades in the social sciences, mathematics and English (French). Quebec students must have a Diploma of Collegial Studies. Geography programs are offered by universities in all provinces except Prince Edward Island and can generally be completed within four years, sometimes as part of a CO-OP program combining study and work. Some universities, especially those in Quebec, offer special certificate programs that are shorter in duration. Women accounted for 36% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period and has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A somewhat greater-than-average proportion of geography graduates continued their studies after graduation, perhaps because of the difficulty previous graduates had in finding related employment. The share who completed their degrees through part-time study, however, was slightly below the average. Geography graduates were somewhat less likely than others to look for work immediately upon graduation, but those in the labour market were just as successful in finding a job. The proportion working full-time was slightly above average, and the proportion working part-time was slightly below average.

Graduates Who Entered the Labour Force

Geography graduates generally obtain work as elementary and secondary school teachers, government inspectors and regulators, financial managers, and sales and advertising managers. For teaching positions, they must obtain an education degree or teaching certificate and then compete with university graduates in all fields. For managerial positions in government and business, they compete with university and community college graduates in commerce, economics and computer science. A large proportion obtain clerical and related jobs, reflecting to some extent a weak demand for geography graduates at this level, but usually leave these positions as soon as a job related to this field presents itself or in order to return to school for a higher degree. The average earnings of 1986 graduates, two years after graduation, regardless of occupation, were virtually the same in 1988 as the average for all graduates at this level. The average earnings of 1982 graduates, however, increased at a somewhat slower rate than the average over the 1984-to-1987 period. Many changed jobs between the third and fifth years of their careers, moving out of community planning and other social science occupations into government administration, teaching and management.

The Course in Retrospect

Geography graduates were fairly unhappy with their educational experience, as a smaller-than-average proportion reported that they would make the same educational choices again. Furthermore, the proportion who found jobs matching their undergraduate training was significantly below average and the proportion who believed themselves to be overqualified for their jobs was sharply above average. Nonetheless, with their earnings matching the average for all graduates, 90% reported that they were satisfied with their jobs, virtually the same as the average. Their overall situation also improved significantly in terms of employment, job satisfaction and earnings over the 1984-to-1987 period.

Geography

Master's
University (2 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	180	184	184	182	173
% Women Graduates	32.2	32.1	33.7	34.3	34.1
% of Total Graduates at this Level	1.3	1.1	1.0	1.0	1.0

Activity of Graduates	Geography Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	17	6
Did Not Enter Labour Force	12	6
Part-time Students Already in Labour Force	12	33
Entered Labour Force	59	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	72	8	20
Average for all Fields at this Level	84	9	7

Working Full-time

Managerial/Administrative (51%)
- Managers and Administrators (17%)
- Management Occupations in Natural Sciences and Engineering (12%)
- Personnel and Industrial Relations (8%)
- Organizational Methods Analysts (8%)
- General Managers (5%)

Natural Sciences, Engineering and Mathematics (19%)
- Community Planners (16%)

Teaching (17%)
- Other Post-Secondary School (9%)
- University (8%)

Other (13%)

Social Sciences and Services

Geography
Master's
University (2 years)

At the master's level in geography, people focus on such areas as cartographic theory, terrain analysis, hydrology, geomorphology and environmental management. Admission requirements vary depending on the institution, but in general, applicants must have an undergraduate honours degree in geography or a closely related field of study (e.g., mathematics). Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference. The master's program is offered by major universities in all provinces except Prince Edward Island, Nova Scotia and New Brunswick and is typically completed within two years, sometimes as part of a CO-OP program combining study and work. Women accounted for 34% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course declined consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1985 period than it was between 1981 and 1987.

Activity of Graduates

A significantly lower-than-average proportion of students in this field pursued their degrees on a part-time basis, and a much higher proportion continued their education after receiving their degree, suggesting that a doctorate enhances job prospects in this field. Even though a slightly higher proportion of geography graduates than average entered the labour force, proportionally fewer were working full-time, as the unemployment rate was very high.

Graduates Who Entered the Labour Force

Most of these graduates find work as community planners in the business service industry, while smaller numbers work as managers and administrators, organization and methods analysts and university and other post-secondary school teachers. Regardless of occupation, 1986 geography graduates earned almost 15% less in 1988 than the average for all graduates at this level. Graduates from this field of study generally encounter job competition from undergraduates with a degree, diploma or certificate in commerce, planning and resource management and economics. About two-thirds of 1982 graduates from this field changed jobs between 1984 and 1987, though most did not change the type of work they were doing. The average salary of these graduates increased faster between the third and fifth years of their careers than that of other master's graduates.

The Course in Retrospect

Generally, geography graduates were slightly less satisfied with their educational experience than other master's graduates, with about 70% reporting that they would make the same educational choices again. This may reflect their lower-than-average earnings, the lower-than-average proportions who found a job that matched their educational training, the comparatively low job satisfaction and the higher-than-average proportion who felt overqualified for their job. Little changed in this situation between the third and fifth years of these graduates' careers.

Geography

Doctorate
University (4 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	29	30	31	34	34
% Women Graduates	3.4	16.7	22.6	23.0	22.9
% of Total Graduates at this Level	1.6	1.6	1.3	1.3	1.3

Activity of Graduates	Geography Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	3	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	30	20
Entered Labour Force	67	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	70	12	18
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching (83%)	**Social Sciences (17%)**
• University Teaching (83%)	• Economists (11%)

Social Sciences and Services

Geography

Doctorate
University (4 years)

At the doctoral level in geography, people specialize in such fields as cartographic theory, terrain analysis, hydrology, geomorphology and environmental management. Admission requirements vary depending on the institution, but all applicants must have a master's degree and demonstrate an ability to do research. Most universities require applicants to undergo an interview and provide letters of reference. Doctorates in geography are awarded by major universities in Quebec, Ontario, Manitoba, Saskatchewan and British Columbia and can usually be completed within four years. Women accounted for 23% of all doctorates awarded in 1987, compared to only 3% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1984 period but has since fallen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 25% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly larger-than-average proportion of geography doctorates were obtained on a part-time basis, with many of the candidates already working. Upon graduation, only a few pursued post-doctoral studies. A smaller-than-average proportion of these doctorates were first-time entrants to the labour market and they had a more difficult time in finding employment that other doctorates. Only 70% found full-time employment, although the proportion who obtained part-time jobs was twice the average. Their unemployment rate was more than three times higher than the average.

Graduates Who Entered the Labour Force

Geography doctorates generally find work as university professors, while some work as researchers in government. They face virtually no direct competition from doctorates in other fields for university teaching positions, but they must compete with master's graduates and doctorates for government research positions. Two years after graduation, 1986 doctorates earned significantly less than all doctorates on average. The average earnings of 1982 doctorates, however, grew at a somewhat faster rate over the 1984-to-1987 period than the average. Virtually none changed jobs during this period.

The Course in Retrospect

Geography doctorates appeared to be fairly unhappy with their educational experience, as only one-half reported that they would make the same educational choices again, if given the opportunity; this level of satisfaction was substantially below average. Nonetheless, those who found jobs were successful in obtaining positions matching their training, and a lower-than-average proportion believed that they were overqualified for their jobs. All reported that they were satisfied with their jobs, and overall working conditions improved somewhat in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Law

Undergraduate
University (3-4 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	3,129	3,216	3,329	3,451	3,599
% Women Graduates	35.4	41.8	46.6	46.9	47.3
% of Total Graduates at this Level	3.2	3.0	2.8	2.8	2.8

Activity of Graduates	Law Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	21	14
Did Not Enter Labour Force	1	5
Part-time Students Already in Labour Force	11	20
Entered Labour Force	67	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	90	3	7
Average for all Fields at this Level	80	10	10

Working Full-time

Social Sciences (87%)

- Lawyers and Notaries (78%)
- Occupations in Law and Jurisprudence (7%)
- Librarians, Archivists and Conservators (2%)

Managerial and Administrative (7%)

- Sales and Advertising Management (2%)

Other (6%)

Social Sciences and Services

Law

Undergraduate
University (3-4 years)

People entering this profession study a variety of subjects, including criminal, business, contract, tax, labour and banking law, and civil liberties. Entry requirements vary depending on the university, but in general, applicants must finish high school with good grades, especially in the humanities, social sciences and English (French). Major universities throughout Canada except those in Newfoundland and Prince Edward Island offer undergraduate programs that students can complete within three years. Enrollments in law school are limited and admission standards are high; applicants must complete at least two years of university with above-average grades to be considered for admission. Most law schools require applicants to undergo an interview, provide letters of reference and pass law school admission tests. Before practicing law, however, students must generally article for at least a year and complete a six month bar admission course and provincial bar exams. In Quebec, the law graduate must complete eight months of bar admission courses, pass the bar exam and then train for six months with a practicing lawyer before they are admitted to the bar. Women are playing an increasing role in this profession and accounted for 47% of 1987 graduates, up from 35% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined slightly over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The share of law graduates who completed their degrees through part-time study was significantly below average, indicating the necessity of full-time classroom participation. A larger-than-average proportion continued their studies upon graduation, but these graduates were also more apt than others to be looking for work after receiving their degrees. They were also more successful in finding jobs, with an unemployment rate somewhat lower than average.

Graduates Who Entered the Labour Force

Most law graduates find jobs as lawyers or in related occupations in law; employment is distributed among the business service sector and the federal government. When looking for work, they compete primarily with university graduates in law and, to a lesser extent, political science. Two years after graduation, law graduates earned significantly more than the average for all graduates at this level. Moreover, the average earnings of 1982 graduates grew almost twice as fast as the average between 1984 and 1987.

The Course in Retrospect

Law graduates were fairly happy with their educational experience, as about 80% reported that they would make the same educational choices again, a sharply higher level of satisfaction than the average. The proportion who found jobs matching their undergraduate training was significantly above average, and the proportion who believed themselves to be overqualified for their jobs was significantly below average. Not surprisingly, with their above-average earnings, almost 95% reported that they were satisfied with their jobs. Furthermore, the overall situation for 1982 graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Planning and Resource Management

Undergraduate
University (3 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	562	693	736	757	784
% Women Graduates	32.6	32.6	39.0	39.2	39.5
% of Total Graduates at this Level	0.6	0.6	0.6	0.6	0.6

Activity of Graduates	Planning and Resource Management Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	18	14
Did Not Enter Labour Force	6	5
Part-time Students Already in Labour Force	20	20
Entered Labour Force	56	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	74	6	20
Average for all Fields at this Level	80	10	10

Working Full-time

Managerial and Administrative (27%)
- Accountants, Auditors and Other Financial Managers (12%)
- Occupations Related to Management and Administration (12%)
- Construction Management (3%)

Natural Sciences (24%)
- Community Planners (15%)
- Draughting (6%)
- Meteorologists (3%)

Teaching and Related (15%)
- Elementary Teaching (12%)
- Instructors and Training Officers (3%)

Sales (13%)
- Supervisors in Service Sales (5%)
- Real Estate Sales (5%)
- Technical Sales (3%)

Other (21%)
- Clerical and Related (7%)
- Social Sciences (4%)
- Artistic, Literary and Recreational (4%)
- Farming and Animal Husbandry (4%)

Planning and Resource Management

Undergraduate
University (3 years)

Individuals entering this field undergo training in a broad range of disciplines including environmental design, resource development, urban economics, transportation planning, and urban and rural design and planning. Admission requirements vary depending on the university, but in general, applicants must complete high school with good grades, especially in mathematics and English (French). Quebec students must have a Diploma of Collegial Studies. Major universities in Nova Scotia, Quebec, Ontario, Manitoba and Saskatchewan award planning degrees, which students typically complete in three years, sometimes as part of a CO-OP program combining formal studies with work. Women accounted for 39% of 1987 graduates, up from 32% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The share of planning graduates who completed their degrees through part-time study was about average, while a somewhat larger-than-average proportion decided to continue their formal studies upon graduating. These graduates were somewhat less likely than others to look for work immediately after completing their studies, and once in the labour force they were less successful in finding a job, with an unemployment rate twice the average.

Graduates Who Entered the Labour Force

Planning and resource management graduates find employment as community planners, construction managers, draughtspersons, accountants, financial managers and elementary school teachers; employment is distributed among provincial and local governments, the construction industry, real estate and business service industries, and the education sector. When looking for work as community planners or construction managers they compete with university graduates at all levels in political science and civil engineering; for the accounting and financial positions they compete primarily with university graduates in commerce and economics. For elementary teaching positions, they first obtain an education degree and then compete with university graduates in all fields. Two years after graduation, 1986 graduates earned somewhat less than the average for all graduates at this level, regardless of occupation. The average earnings of 1982 graduates, however, grew much faster between 1984 and 1987 than the average. A large number of these graduates changed jobs between the third and fifth years of their careers, moving from community planning into government administration or from financial management into community planning.

The Course in Retrospect

These graduates appeared to be fairly unhappy with their educational experience, as a lower-than-average share reported that they would make the same educational choices again. Moreover, the proportion who found jobs matching their undergraduate training was significantly below average and the proportion who believed themselves to be overqualified for their jobs was significantly above the average. Average earnings were also relatively low, and not surprisingly only 78% of these graduates reported that they were satisfied with their jobs, significantly below the average. However, overall job conditions improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Planning and Resource Management

Master's
University (2 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	267	316	356	353	335
% Women Graduates	33.0	35.4	35.7	36.3	36.1
% of Total Graduates at this Level	1.9	1.9	2.0	2.0	2.0

Activity of Graduates	Planning and Resource Management Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	1	6
Did Not Enter Labour Force	2	6
Part-time Students Already in Labour Force	32	33
Entered Labour Force	65	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	90	2	8
Average for all Fields at this Level	84	9	7

Working Full-time

Natural Sciences, Engineering and Mathematics (37%)
- Community Planners (16%)
- Architects (5%)
- Professional Engineers (5%)

Managerial and Administrative (24%)
- Other Managers and Administrators (11%)
- Other Government Administrators (4%)
- Financial Managers (3%)
- Accountants and Auditors (3%)

Social Sciences (24%)
- Economists (13%)

Other (15%)

Planning and Resource Management

Master's
University (2 years)

Individuals studying this field at the master's level specialize in rural and urban planning, transportation systems and design, community development, environmental studies and resource management. Entry prerequisites vary depending on the university, but in general, applicants must have an undergraduate honours degree in this or a closely related field of study (e.g., economics or geography). Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference. Major universities in all provinces except Newfoundland, Prince Edward Island, New Brunswick and Saskatchewan offer graduate programs in this field. Students normally finish these programs within two years, sometimes as part of a CO-OP program combining study and work. A few universities offer graduate diploma or certificate programs that are shorter in duration but which require applicants to possess an undergraduate degree. Men dominate this field, with women accounting for 36% of all 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained steady over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

An average proportion of those graduates pursued their degrees on a part-time basis, and a lower-than-average proportion continued their education after receiving their degree. They were also more likely to be looking for work immediately after graduation and were very successful in finding full-time employment. Their unemployment rate was similar to the overall average, and few of these graduates took part-time jobs.

Graduates Who Entered the Labour Force

The majority of these graduates find work as community planners in the business service industry, while smaller numbers work as economists or managers and administrators. Regardless of occupation, these graduates earned about 15% less in 1988 than the average for all master's graduates. They generally encounter job competition from undergraduates with a degree, diploma or certificate in planning and resource management, geography or economics. About 50% of 1982 graduates from this field changed jobs between 1984 and 1987, usually moving among positions as community planners, economists and government administrators. The average salary of 1982 graduates increased at about the same rate over the 1984-to-1987 period as that of other graduates at this level.

The Course in Retrospect

Planning and resource management graduates were somewhat less pleased with their educational experience than others at this level, with about 70% indicating they would make the same educational choices again. An average proportion found a job that matched their educational training, and job satisfaction was also average. However, a greater-than-average proportion felt overqualified for their work, and salaries were somewhat lower than the average for other graduates at this level. This situation changed little between the third and fifth years of these graduates' careers, with the exception that the proportion who were satisfied with their current job increased significantly.

Political Science

Undergraduate
University (3 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,771	2,075	2,969	3,082	3,217
% Women Graduates	36.0	39.0	41.0	41.2	41.6
% of Total Graduates at this Level	1.8	1.9	2.5	2.5	2.5

Activity of Graduates	Political Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	39	14
Did Not Enter Labour Force	6	5
Part-time Students Already in Labour Force	14	20
Entered Labour Force	41	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	66	10	24
Average for all Fields at this Level	80	10	10

Working Full-time

Managerial and Administrative (29%)

- Sales and Advertising Managers (9%)
- Occupations Related to Management and Administration (5%)
- Government Administrators (4%)
- Services Managers (4%)

Sales (15%)

- Commodity Sales Clerks and Salespersons (5%)
- Commercial Travellers (3%)
- Insurance Salespersons (3%)

Clerical and Related (14%)

- General Office Clerks (4%)
- Bookkeepers and Accounting Clerks (2%)
- Insurance, Bank and Other Finance Clerks (2%)

Artistic, Literary and Recreational (12%)

- Sports and Recreation Coaches and Trainers (3%)
- Sports and Recreation Supervisors (2%)
- Sports and Recreation Attendants (2%)
- Performing and Audio-Visual Arts (2%)

Other (30%)

- Social Sciences (8%)
- Teaching (5%)
- Service Occupations (5%)

Political Science

Undergraduate
University (3 years)

Individuals entering this field study power, conflict and conflict resolution, focussing on such areas as political theory and methodology, comparative politics, international relations, interest groups, government structures and legal systems. Entry prerequisites depend on the university, but in general, applicants must have a high school diploma with good grades. (Quebec students must possess a Diploma of Collegial studies.) Major universities in all provinces offer undergraduate degrees which students normally complete in three years, sometimes as part of a CO-OP program combining formal studies with work experience. Women accounted for 41% of 1987 graduates, up from 36% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1984 period but has since risen significantly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 40% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of political science graduates who complete their degrees through part-time study was somewhat below average, while a significantly higher-than-average share decide to continue their formal education upon graduating, suggesting that a higher degree enhances career prospects in this field. These graduates were much less likely than others at this level to enter the labour force immediately after graduating, and those who did so were less successful than average in finding either full- or part-time jobs. As a result, the rate of unemployment for political science graduates was more than twice the average for all graduates at this level.

Graduates Who Entered the Labour Force

Political science graduates find employment in a wide variety of occupations ranging from managers in government, services, and sales and advertising, to legal administrators and sales personnel. When looking for work they compete primarily with other university graduates. Regardless of occupation, 1986 graduates earned approximately the same average income as all other graduates at this level in 1988. The average earnings of 1982 graduates, however, increased at a much faster pace between 1984 and 1987 than the average earnings of all other graduates. Many of these political science graduates changed jobs between the third and fifth years of their careers, mostly moving out of sales into sales management positions.

The Course in Retrospect

The graduates were fairly unhappy with their educational experience, as a substantially lower-than-average proportion reported that they would make the same educational choices again. The proportion who found jobs matching their undergraduate training was also substantially below the average for all other graduates, while the share who believed themselves to be overqualified for their jobs was significantly above average. Consequently, only about 80% reported that they were satisfied with their jobs, substantially fewer than the average. However, overall working conditions for political science graduates improved significantly in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Political Science

Master's
University (2 years)

**Social Sciences
and Services**

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	293	303	360	357	339
% Women Graduates	25.3	27.7	31.1	31.7	31.5
% of Total Graduates at this Level	2.0	1.9	2.0	2.0	2.0

Activity of Graduates	Political Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	15	6
Did Not Enter Labour Force	7	6
Part-time Students Already in Labour Force	25	33
Entered Labour Force	53	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	64	15	21
Average for all Fields at this Level	84	9	7

Working Full-time

Managerial and Administrative (36%)
- Other Managers and Administrators (13%)
- Organization Methods Analysts (7%)
- Natural Science Managers (4%)
- Personnel and Related (3%)
- Administrators in Teaching (3%)

Natural Sciences, Engineering and Mathematics (14%)
- Systems Analysts and Computer Programmers (4%)

Teaching (11%)
- University and Related (5%)
- Community College and Vocational (4%)
- Elementary and Secondary (2%)

Social Sciences (10%)
- Social Work and Related (8%)

Other (29%)

Social Sciences and Services

Political Science
Master's
University (2 years)

At the graduate level, people in this field specialize in such subjects as comparative politics, government, international relations and political theory. Admission requirements vary depending on the university, but in general, applicants must have an undergraduate honours degree in this or a closely related field (e.g., economics, sociology, geography). Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference. Major universities in all provinces except Newfoundland, Prince Edward Island and New Brunswick offer graduate political science programs which are normally completed within two years, sometimes as part of a CO-OP program combining study and work. A few universities offer graduate diploma or certificate programs that are shorter in duration but which require applicants to possess an undergraduate degree. Women accounted for 31% of 1987 graduates, up from 26% in 1981.

Graduate Trends and Projections

The relative popularity of this course remained steady over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A somewhat smaller proportion of these graduates than average pursued their degree on a part-time basis, and a greater proportion than average continued their education after receiving their degree, underlining the value of a doctorate in enhancing career prospects in this field. An average proportion of these graduates entered the labour force but fared comparatively poorly; the proportion of these graduates finding full-time employment was significantly less than average, while the proportion who were unemployed was three times greater than the average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as managers and administrators in government, while a smaller number work as writers and editors, organization methods analysts, research officers in social welfare occupations, and in post-secondary and related teaching. Regardless of occupation, 1986 graduates earned about 20% less than the average for all master's graduates in 1988.

Graduates from this field of study generally encounter job competition from undergraduates and community college graduates with a degree, diploma or certificate in commerce or related fields, as well as from those with a master's degree in special administration or a community college diploma or certificate in mass communications. About 40% of 1982 graduates changed jobs between 1984 and 1987, mostly moving within management and administration or writing and editing. Salaries for these graduates increased faster between the third and fifth years of their careers than the average.

The Course in Retrospect

A somewhat smaller proportion of political science graduates (75%) than other master's graduates would choose the same educational program if the decision had to be made again, which may reflect their comparatively poor situation in the labour market. They were less likely to find a full-time job or one which matched their educational training, and job satisfaction and earnings were both below average. Furthermore, a larger proportion than average felt overqualified for their jobs. This situation changed little between the third and fifth years of their careers, with the exception that the proportion working part-time increased substantially and the proportion who were unemployed decreased significantly.

Political Science

Doctorate
University (5 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	27	34	38	42	42
% Women Graduates	37.0	20.6	7.9	8.0	8.0
% of Total Graduates at this Level	1.5	1.8	1.6	1.6	1.6

Activity of Graduates	Political Science Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	3
Did Not Enter Labour Force	0	2
Part-time Students Already in Labour Force	42	20
Entered Labour Force	56	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	11	5
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching
(40%)
- University Teaching (40%)

Managerial and Administrative
(40%)
- Government Administrators (20%)
- Administrators in Teaching and Related Fields (20%)

Other
(20%)

Social Sciences and Services

Political Science

Doctorate
University (5 years)

At the doctoral level in this field, individuals specialize in such subjects as comparative politics, government, international relations and political theory. Admission requirements vary depending on the university, but all applicants must have a master's degree in political science with high standing. Most universities require applicants to undergo an interview and provide letters of reference. Major universities in Nova Scotia, Quebec, Ontario, Alberta and British Columbia award doctorates in political science, which students normally complete within five years. Women accounted for only 8% of doctorates awarded in 1987, down sharply from 37% in 1981.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1984 period but has since fallen to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 35% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A significantly larger-than-average proportion of political science doctorates were obtained on a part-time basis (i.e., many of the candidates already had jobs). Upon graduation, a slightly smaller-than-average share pursued post-doctorate studies, and a smaller-than-average proportion immediately entered the labour market. They were just as successful as other doctorates in finding employment, with more than 80% finding full-time jobs and about 10% working part-time. The unemployment rate for political science doctorates matched the average rate for all doctorates.

Graduates Who Entered the Labour Force

Political science doctorates generally find work as university professors, and educational and government administrators. They face virtually no direct competition from doctorates in other fields for university teaching positions, but they must compete with university graduates at all levels from other fields (especially planning and resource management, and history) for government positions. Two years after graduation, 1986 doctorates earned about the same as all doctorates on average. Earnings for 1982 doctorates rose at a much slower rate over the 1984-to-1987 period than the average. Virtually none of these doctorates changed occupations between the third and fifth years of their careers.

The Course in Retrospect

Political science doctorates appeared to be fairly pleased with their educational experience, as the proportion who reported that they would make the same educational choices again was equal to the average response. The proportion who found jobs that matched their training was slightly below average, and more than one-half believed that they were overqualified for their jobs. All reported that they were satisfied with their current jobs. However, overall working conditions for 1982 doctorates deteriorated somewhat in terms of employment and job satisfaction but improved somewhat in terms of earnings between the third and fifth years of their careers.

Protection and Correction Services

Career Program
Community College (2 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,408	1,837	2,298	2,228	2,191
% Women Graduates	34.7	39.6	37.5	36.4	33.4
% of Total Graduates at this Level	2.9	3.1	3.9	3.9	3.9

Activity of Graduates	Protection and Correction Services Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	13	25
Did Not Enter Labour Force	1	3
Part-time Students Already in Labour Force	11	7
Entered Labour Force	75	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	87	6	7
Average for all Fields at this Level	75	12	13

Working Full-time

Services (62%)
- Police Officers and Detectives (Government) (34%)
- Security Guards (17%)

Social Sciences (10%)
- Law and Jurisprudence (5%)

Management and Administration (9%)
- Government Inspectors and Regulatory Officers (3%)
- Private Investigators (2%)

Other (19%)
- Clerical (7%)
- Construction Trades (5%)
- Sales (2%)

Social Sciences and Services

Protection and Correction Services

Career Program
Community College (2 years)

Individuals entering this field undergo training in policing techniques, security and protection technologies, penal correction technologies, para-legal technologies and legal assistance. Admission requirements vary depending on the program and the institution, but in general, applicants must complete senior high school courses in mathematics and English (French) and have some relevant work experience. Most colleges also require applicants to pass a medical examination, pass diagnostic tests in mathematics and English (French), undergo an interview and provide letters of recommendation. These programs are offered in all provinces except Newfoundland, New Brunswick and Saskatchewan and can be completed within two years, often as part of a CO-OP program combining work and study. Men make up the majority of graduates, with women accounting for 37% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course rose consistently over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of new graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of these graduates who continued their education upon graduating was approximately half the average, with a larger proportion than average choosing to look for a job instead. The proportion receiving their diploma or certificate on a part-time basis was above average, possibly because some of these students were upgrading their skills or changing careers. These graduates were more successful than average in finding a job, and most were working full-time. Furthermore, unemployment among these graduates declines significantly over time.

Graduates Who Entered the Labour Force

Most protection and correction graduates find employment as police officers or detectives working for local government, while smaller numbers work as security guards, private investigators or para-legals. Graduates from this course generally compete among themselves and against university graduates in sociology or criminology.

Two years after graduation, 1986 graduates were earning about 20% more than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, salaries of protection and correction graduates increased at a rate approximating the average. Over this period an average proportion changed jobs, usually moving among positions as police officers, detectives and security guards. About 95% of the graduates who were police officers and detectives in 1984 were still police officers and detectives in 1987.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by an average proportion being satisfied with their current job. This probably results from a relatively strong match between field of study and current job, a higher-than-average salary and a lower-than-average unemployment rate. On the other hand, almost two-thirds of 1986 graduates felt that they were overqualified for their job in 1988. Seventy percent indicated that they would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers, 1982 graduates tended to become disillusioned with their job, with a larger proportion feeling overqualified and fewer being content with past educational decisions, although a larger proportion in 1987 than in 1984 were satisfied with their current job and more felt their job matched their educational background.

Psychology

Undergraduate
University (3 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	4,423	5,243	7,116	7,334	7,617
% Women Graduates	70.1	74.4	75.3	75.7	76.4
% of Total Graduates at this Level	4.5	4.9	5.9	5.9	5.9

Activity of Graduates	Psychology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	18	14
Did Not Enter Labour Force	7	5
Part-time Students Already in Labour Force	23	20
Entered Labour Force	52	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	69	16	15
Average for all Fields at this Level	80	10	10

Working Full-time

Teaching (24%)

- Elementary and Kindergarten Teachers (15%)
- University Teaching and Related (3%)
- Elementary and Secondary School Teaching and Related (2%)
- Secondary School Teachers (1%)

Clerical and Related (23%)

- Receptionists and Information Clerks (2%)
- Bookkeepers and Accounting Clerks (2%)
- Electronic Data Processing Operators (2%)

Social Sciences (21%)

- Social Workers (12%)
- Occupations in Welfare and Community Services (4%)

Managerial and Administrative (11%)

- Service Managers (4%)
- Personnel and Related Officers (2%)

Other (21%)

- Services (6%)
- Sales (5%)
- Medicine and Health (5%)

Social Sciences and Services

Psychology

Undergraduate
University (3 years)

People entering this field study human behaviour, focussing on the stresses and pressures on individuals and their reactions, with such concerns as social psychology, learning and cognition, personality, drugs and addiction, behavioural neuroscience, criminal behaviour and child development. Entry requirements vary with the university, but in general, applicants must have a high school diploma with good grades especially in mathematics and English (French). (Quebec students must have a Diploma of Collegial Studies.) Universities in all provinces offer undergraduate degrees in psychology which students typically finish in three years, sometimes as part of a CO-OP program combining formal studies and work experience. Women dominate this field, accounting for 75% of 1987 graduates, an increase from 70% in 1981.

Graduate Trends and Projections

The relative popularity of this course among students rose significantly over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, the number of new graduates from this course is expected to be about 35% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of graduates who completed their degrees through part-time study was slightly above average compared with all other graduates at this level. Furthermore, a somewhat higher-than-average share decided to continue their education upon graduation, perhaps indicating difficulties for past graduates at this level in finding a job. Consequently, the proportion who immediately entered the labour force upon graduation was smaller than the average for other graduates. Psychology graduates were less successful in finding work than other graduates on average, with substantially fewer than average working full-time and significantly more than average working part-time. The rate of unemployment was also sharply higher than the average for all other graduates.

Graduates Who Entered the Labour Force

Many psychology graduates find employment in elementary school-teaching, social work, welfare counselling, community service, personnel management and service industry management primarily in education, health and social service, provincial and local governments and the business service industries. For teaching, graduates must also obtain an education degree and then compete with other graduates in the various education fields, whose backgrounds are in the social sciences and humanities. In the social work field, psychology graduates compete with university and community college graduates in related fields. Regardless of their occupation, two years after graduation, they earned significantly less than the average for all graduates at this level. Moreover, between 1984 and 1987, the average earnings of 1982 graduates increased at only one-half the rate of the average earnings of all other graduates. Many also changed jobs between 1984 and 1987, mostly from psychology into elementary and secondary teaching, social work, and educational and vocational counselling.

The Course in Retrospect

Psychology graduates appear to be somewhat unhappy with their educational experience, as a lower-than-average share reported that they would make the same educational choices again. Furthermore, the proportion who found jobs matching their undergraduate training was somewhat lower than average when compared to other graduates and the proportion who believed themselves to be overqualified for their jobs was sharply above average. Nonetheless, perhaps because of the nature of their work, 85% reported that they were satisfied with their jobs, slightly below the average for all other graduates. Overall work conditions in terms of employment and job satisfaction for these graduates did improve significantly between the third and fifth years of their careers.

Psychology

Master's
University (2 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	540	515	541	536	509
% Women Graduates	52.6	64.5	68.2	69.4	69.1
% of Total Graduates at this Level	3.8	3.1	3.1	3.1	3.1

Activity of Graduates	Psychology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	19	6
Did Not Enter Labour Force	8	6
Part-time Students Already in Labour Force	20	33
Entered Labour Force	53	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	67	23	10
Average for all Fields at this Level	84	9	7

Working Full-time

Social Sciences (74%)
- Psychologists (48%)
- Social Workers (11%)
- Welfare and Community Services (4%)
- Educational and Vocational Counsellors (3%)

Teaching (10%)
- University and Related (6%)
- Community College and Vocational (3%)
- Elementary and Secondary (1%)

Managerial and Administrative (6%)
- Administrators in Teaching (2%)
- Administrators in Medicine and Health (2%)

Other (10%)

Psychology

Master's
University (2 years)

People studying psychology at the master's level specialize in such areas as abnormal psychology, pathological psychology, child behaviour, cognition and learning theory, social psychology and clinical psychology. Entry requirements vary depending on the university, but in general, applicants must have an undergraduate honours degree in this or a closely related field. Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference. Graduate psychology programs are offered by major universities in all provinces except Prince Edward Island and can typically be completed within two years, sometimes as part of a CO-OP program combining study and work. A few universities offer graduate diploma or certificate programs that are shorter in duration but which require applicants to possess an undergraduate degree. Women accounted for 68% of 1987 graduates, up from 53% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined over the 1981-to-1984 period and stabilized thereafter. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% less over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of psychology graduates who pursued their degrees on a part-time basis was dramatically lower than average, while a much larger proportion than average continued their education after receiving their degree, underlining the value of a doctorate in enhancing career prospects in this field. The proportion that entered the labour force was about the same as average. Once in the labour market, these graduates were slightly less successful in their job search than other master's graduates, with a much smaller proportion working full-time, a much larger proportion working part-time and a slightly larger proportion unemployed.

Graduates Who Entered the Labour Force

The majority of these graduates find work as psychologists in the health and social service industries, while a smaller number work as social workers, post-secondary teachers and in medical and related occupations. Psychology graduates earned about 25% less in 1988 than the average for all master's graduates, regardless of occupation. Graduates from this field generally face job competition from doctorates in psychology and from those with an undergraduate degree, diploma or certificate in non-teaching education.

About 60% of 1982 graduates changed jobs between 1984 and 1987, generally moving out of positions as psychologists into occupations in social work or medical and health administration. Their salaries increased somewhat more slowly over the 1984-to-1987 period than average.

The Course in Retrospect

The proportion of psychology graduates (80%) who would choose the same program if they had to make the decision again was about average. This may reflect the fact that the proportion who found jobs that matched their educational training and the proportion who were satisfied with their current job were average. A lower proportion than average felt overqualified for their job. This situation did not change greatly over the 1984-to-1987 period, with the exceptions that a dramatically smaller proportion were unemployed in 1987 than in 1984, and a much smaller proportion felt overqualified for their jobs.

Psychology

Doctorate
University (4 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	185	171	198	220	220
% Women Graduates	36.2	46.2	53.0	54.0	53.7
% of Total Graduates at this Level	10.2	9.1	8.3	8.3	8.3

Activity of Graduates	Psychology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	3
Did Not Enter Labour Force	2	2
Part-time Students Already in Labour Force	20	20
Entered Labour Force	74	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	11	5
Average for all Fields at this Level	88	7	5

Working Full-time

Social Sciences (49%)
- Psychologists (44%)
- Educational and Vocational Counsellors (2%)
- Social Workers (2%)

Teaching (30%)
- University Teaching (25%)
- University Teaching and Related (3%)

Managerial and Administrative (7%)
- Organization and Methods Analysts (6%)

Other (14%)
- Medicine and Health (5%)

Social Sciences and Services

Psychology

Doctorate
University (4 years)

At the doctoral level in psychology, specialization is in abnormal psychology, pathological psychology, child behaviour, cognition and learning theory, social psychology and clinical psychology. Entry requirements vary with the university, but in general, applicants must have an master's degree (or in some cases a bachelor's degree in clinical psychology) and demonstrate an ability for research. Most universities require applicants to undergo an interview and provide letters of reference. Doctorates are awarded by major universities in all provinces except Newfoundland, Prince Edward Island and New Brunswick. Students can generally complete their doctorates in about four years. Women accounted for 53% of all doctorates awarded in 1987, up from 36% in 1981.

Graduate Trends and Projections

The popularity of this course declined significantly over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, the number of graduates from this course is expected to be about 25% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

With many of these students already employed, the proportion of psychology doctorates who obtained degrees on a part-time basis equaled the average for doctorates in all fields. Furthermore, the share who continued with post-doctoral studies upon graduation was also about average. As a result, the proportion looking for employment immediately upon graduation was about the same as the average for all doctorates. They were also as successful as other doctorates in finding work. A somewhat lower-than-average proportion found full-time jobs while a larger-than-average share, either by design or necessity, found only part-time work, resulting in an average unemployment rate.

Graduates Who Entered the Labour Force

Psychology doctorates generally find work as psychologists, as university teachers or in related occupations primarily in education and health and welfare. Normally psychology doctorates face very little direct competition for university teaching positions from other doctorates in other fields but must sometimes compete with doctorates in education and physical education for positions as educational psychologists. Two years after graduation, they earn about the same average incomes as all doctorates. However, over the 1984-to-1987 period, the average earnings of 1982 psychology doctorates grew at a somewhat slower rate than the average earnings of all doctorates. A large number changed occupations between the third and fifth years of their careers, generally away from the direct practice of psychology into related management counselling, educational counselling, and teaching.

The Course in Retrospect

Psychology doctorates were dissatisfied with their educational experience, as only seven out of ten reported that they would make the same educational choices again, somewhat below the average response for doctorates in all fields. This contrasts with the fact that virtually all of the psychology doctorates who found jobs were able to obtain positions matching their training, and that the proportion who believed that they were overqualified for their jobs was below average. Moreover, nearly all reported that they were satisfied with their jobs, a result slightly above the average for all doctorates. In addition, job satisfaction and earnings improved somewhat, while employment remained fairly stable, for 1982 doctorates between the third and fifth years of their careers.

Service Industries Technologies

Career Program
Community College (2 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	424	835	795	771	758
% Women Graduates	60.8	56.2	56.2	58.3	65.1
% of Total Graduates at this Level	0.9	1.4	1.4	1.4	1.4

Activity of Graduates	Service Industries Technologies Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	11	25
Did Not Enter Labour Force	3	3
Part-time Students Already in Labour Force	2	7
Entered Labour Force	84	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	7	9
Average for all Fields at this Level	75	12	13

Working Full-time

Services (57%)
- Chefs and Cooks (20%)
- Supervisors: Food and Beverage Preparation (17%)
- Funeral Directors (13%)
- Food and Beverage Servers (4%)

Clerical (19%)
- Hotel Clerks (4%)
- Cashiers and Tellers (4%)
- Receptionists (3%)
- Travel Clerks (2%)

Management and Administration (16%)
- Service Managers (8%)
- Financial Officers (4%)

Other (8%)
- Sales (2%)
- Artistic Occupations (2%)
- Construction Trades (2%)

Service Industries Technologies

Career Program
Community College (2 years)

Individuals entering this field undertake training in a wide variety of activities related to baking, cooking, serving food, home economics, laundry and dry cleaning, hospitality and tourism and funeral directing. Admission prerequisites vary depending on the institution, but in general, applicants must have some work experience and have completed senior high school courses in mathematics, English (French), and for some programs, chemistry. Most colleges require applicants to pass diagnostic English (French) tests, undergo an interview and sometimes pass a medical examination. Community colleges in all provinces except Newfoundland, New Brunswick and Manitoba offer instruction in these technologies. Students can complete these programs within two years, sometimes as part of a CO-OP program. Women accounted for 56% of the 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course rose over the 1981-to-1984 period and has since stabilized. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was over the 1981-to-1987 period.

Activity of Graduates

A much smaller-than-average proportion of these graduates continued their education upon graduating, with a larger proportion than average choosing to look for a job instead. This is fairly typical of graduates in social service fields. The proportion of students receiving their diploma/certificate on a part-time basis was smaller than average, implying that full-time classroom participation is usually necessary to complete this course. A larger-than-average proportion of 1986 graduates were successful in finding a job, and comparatively few were working part-time. Furthermore, the proportion of those not working declines over time, as many unemployed ultimately find part-time work.

Graduates Who Entered the Labour Force

Most service industry technology graduates find employment as chefs and cooks in the food, beverage and service industry, while smaller numbers work as food and beverage preparation supervisors, funeral directors or service managers. Graduates from this course generally face job competition from other community college graduates in this course or from trade/vocational graduates in cooking courses. Two years after graduation, 1986 graduates were earning about 10% less than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, the average salary of service industry technology graduates increased at a rate faster than the average for other community college graduates. During this time, a greater-than-average proportion changed jobs, usually moving among positions as food and beverage preparation supervisors, service managers and chefs and cooks.

The Course in Retrospect

The transition from school to work did not appear to be an overly positive experience for these graduates, as a smaller-than-average proportion expressed satisfaction with their current job. This probably results from larger-than-average numbers feeling overqualified and less-than-average salaries. Only about three out of five 1986 service industry technology graduates indicated that they would make the same education decisions if the choice had to be made again. Between the third and fifth years of their careers, however, 1982 graduates felt their situation improved, with more feeling their job matched their training, more being content with past educational decisions, and salaries growing at a faster rate than average, although a larger proportion felt overqualified for their job in 1987 than in 1984.

Service Industries Technologies (Cooking)

Social Sciences and Services

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (6 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	2,233	2,727	2,653	2,408
% of Total Graduates at this Level	4.4	5.5	5.5	5.5

Activity of Graduates	Service Industries Technologies (Cooking) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	7
Did Not Enter Labour Force	5	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	87	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	71	9	20
Average for all Fields at this Level	74	9	17

Working Full-time

Service Occupations (74%)	Clerical (6%)	Food, Beverage and Related Processing (5%)	Other (15%)
• Chefs and Cooks (61%) • Supervisors of Food and Beverage Preparation (5%)		• Bakers, Confectioners and Related (4%)	

Service Industries Technologies (Cooking)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(6 months)

People entering this field of study obtain training as cooks or chefs. The entry requirements vary depending upon the type of program (pre-employment or skill upgrading) and the institution, but most entrants have already completed their secondary education. Cooking programs are offered by public institutions in all provinces and normally are about six months in duration.

Graduate Trends and Projections

The number of graduates is a good indicator of the future number of persons who will be competing for similar kinds of jobs. Reflecting an increase in the relative popularity of this field, the number of graduates rose from 2,233 in 1984 to 2,727 in 1987. Under current conditions, about the same number of students per year should complete this course over the 1989-to-1995 period as in the recent past.

Activity of Graduates

Relative to other graduates at this level, an average proportion of these graduates pursue their studies on a part-time basis. The proportions of these graduates who enter the labour force upon completion of their program and who find full-time jobs are about average, although a larger-than-average proportion are unemployed.

Graduates Who Entered the Labour Force

The majority of these graduates find work as chefs and cooks in the food and beverage service industry, while smaller numbers take jobs as bakers and supervisors of food and beverage preparation. Regardless of occupation, 1986 graduates earned about 15% less in 1988 than the average for others at this level. In general, graduates from this field face job competition from other trade/vocational graduates from this or related fields of study and from community college graduates with a diploma or certificate in service industries technology. About 60% of 1982 graduates changed jobs between 1984 and 1987, generally leaving positions as chefs and cooks for jobs as supervisors of food and beverage preparation and for other service occupations. Their average salary increased more slowly over this period than for other graduates at this level.

The Course in Retrospect

The proportion of these graduates (70%) who would choose the same educational program again is about average. This parallels the greater-than-average proportion who found work related to their education and an average level of job satisfaction. Nonetheless, a larger-than-average proportion felt overqualified for their jobs. This situation changed little over the 1984-to-1987 period, with the exception that a larger percentage was employed full-time in 1987.

Service Industries Technologies (Other Food Preparation)

Social Sciences and Services

Trade/Vocational Programs
Public Trade Schools and Similar Institutions (7 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	391	556	541	491
% of Total Graduates at this Level	0.8	1.1	1.1	1.1

Activity of Graduates	Service Industries Technologies (Other Food Preparation) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	7
Did Not Enter Labour Force	9	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	83	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	61	20	19
Average for all Fields at this Level	74	9	17

Working Full-time				
Food, Beverage and Related Processing (39%) • Bakers, Confectioners and Related (34%)	**Service Occupations (25%)** • Chefs and Cooks (13%) • Bartenders (5%) • Waiters-Food and Beverage (3%)	**Managerial and Administrative (10%)** • Food and Beverage Production Managers (4%) • Food and Beverage Managers (3%)	**Product Fabricating, Assembling and Repairing (9%)** • Inspecting, Testing, Grading and Sampling Metal Products (3%)	**Other (17%)**

Service Industries Technologies (Other Food Preparation)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(7 months)

Individuals entering this field seek training in baking, bartending or dietary administration. The entry prerequisites vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most graduates possess a high school diploma before enrolling. Institutions in all provinces except Prince Edward Island, New Brunswick and Saskatchewan offer instruction in these programs, which are usually about seven months in duration.

Graduate Trends and Projections

The number of graduates is a good indicator of the future number of persons who will be competing for similar kinds of jobs. Mirroring a rise in the relative popularity of this field of study, the number of graduates increased from 391 in 1984 to 556 in 1987. Under current conditions, about 10% more students per year should complete this course than in the past.

Activity of Graduates

The proportion of these graduates who pursue their program on a part-time basis is about average, as is the proportion who enter the labour force after completion of their program. A much larger-than-average proportion, however, were working only part-time.

Graduates Who Entered the Labour Force

Most of these graduates find jobs as bakers in the food, beverage and drug industries, while smaller numbers work as chefs and cooks, bartenders, waiters and food and beverage production managers. Regardless of occupation, 1986 graduates earned about 20% less in 1988 than the average for other graduates at this level. In general, graduates from this field of study face job competition from other trade/vocational graduates with a diploma or certificate in cooking. About 60% of 1982 graduates changed jobs over the 1984-to-1987 period, generally leaving positions as bartenders (perhaps stop-gap employment) and bakers to become food and beverage managers and community college and vocational school teachers. Their average salary rose almost as fast over the 1984-to-1987 period as the average for other trade/vocational graduates.

The Course in Retrospect

Almost an average proportion of these graduates (65%) would choose the same educational program again. Although a lower-than-average proportion found jobs related to their education, and a larger-than-average proportion felt overqualified for their work, the level of job satisfaction was above the norm. The employment situation of these graduates improved over the 1984-to-1987 period.

Service Industries Technologies (Other)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(3 months)

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	206	550	535	486
% of Total Graduates at this Level	0.4	1.1	1.1	1.1

Activity of Graduates	Service Industries Technologies (Other) Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	9	7
Did Not Enter Labour Force	4	4
Part-time Students Already in Labour Force	2	4
Entered Labour Force	85	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	69	13	18
Average for all Fields at this Level	74	9	17

Working Full-time

Service Occupations (58%)	Clerical (15%)	Managerial and Administrative (10%)	Farming, Horticulture and Animal Husbandry (8%)	Other (9%)
• Food and Beverage Serving (23%) • Janitors and Cleaners (17%) • Chefs and Cooks (8%) • Bartenders (5%)	• Bookkeepers and Accounting Clerks (9%)			

Service Industries Technologies (Other)

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(3 months)

Individuals entering this field undertake training in serving food, hospitality, serving tourists, building custodianship, funeral direction and embalming, and dry cleaning and laundering. Admission requirements vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most graduates have completed their secondary education before enrolling. Various service industry programs are offered by institutions in all provinces except Prince Edward Island and Newfoundland and generally take about three months to complete.

Graduate Trends and Projections

The number of graduates is a good reflection of the number of people who will be competing for similar kinds of jobs in the future. Reflecting a rise in the relative popularity of this field of study, the number of graduates increased from 206 in 1984 to 550 in 1987. Under current conditions, about twice as many students per year should complete this course than in the past.

Activity of Graduates

A lower-than-average proportion of these graduates pursued their program on a part-time basis. While an average proportion entered the labour force, a lower-than-average proportion found full-time jobs and an average proportion were unemployed.

Graduates Who Entered the Labour Force

The majority of these graduates work as food and beverage servers in the food and beverage service industries, while smaller numbers are employed as chefs and cooks, bartenders, bookkeepers and accounting clerks and building custodians. Regardless of occupation, 1986 graduates earned about 10% less than the average for other graduates at this level in 1988. Generally, graduates from this field of study face job competition from trade/vocational and community college graduates with a diploma or certificate in this or related fields. About 50% of 1982 graduates changed jobs between 1984 and 1987, generally moving out of food and beverage serving occupations into service management occupations or into positions as food beverage supervisors. Their average salary rose almost as fast over this period as the average for other graduates at this level.

The Course in Retrospect

A lower-than-average proportion of these graduates would choose the same educational program again if given the choice. This may reflect the fact that a lower-than-average proportion found jobs related to their education, and that a larger-than-average proportion felt overqualified for their work, in spite of the fact that an average proportion were satisfied with their jobs. The proportion employed full-time and who were satisfied with their jobs increased over the 1984-to-1987 period.

Social Services

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(3 months)

Social Sciences and Services

Graduate Trends and Projections	1984	1987	1989	1995
Number of Graduates	716	521	507	460
% of Total Graduates at this Level	1.4	1.1	1.1	1.1

Activity of Graduates	Social Services Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	4	7
Did Not Enter Labour Force	6	4
Part-time Students Already In Labour Force	13	4
Entered Labour Force	77	85

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	62	27	11
Average for all Fields at this Level	74	9	17

Working Full-time

Service Occupations (28%)	Social Sciences and Related (26%)	Medicine and Health (23%)	Teaching (11%)	Other (12%)
• Personal Service (12%) • Child Care (10%) • Food and Beverage Serving (4%)	• Welfare and Community Services (13%)	• Nursing Attendants (19%)	• Elementary and Kindergarten Teachers (7%) • Teachers of Exceptional Students (4%)	

Social Services

Trade/Vocational Programs
Public Trade Schools and Similar Institutions
(3 months)

At the public trade school level, people who enter this field study the skills required in child care, geriatric care, social services and welfare. The entry prerequisites vary depending on the type of program (pre-employment or skill upgrading) and the institution, but most graduates have completed their secondary education before enrolling. All provinces except Prince Edward Island, Nova Scotia and Saskatchewan offer basic training in the social services, with most courses lasting about three months.

Graduate Trends and Projections

The number of graduates and changes in this number is a reflection of the future number of people who will be competing for similar kinds of jobs. Mirroring a fall in the relative popularity of this field (perhaps initiated by an increase in the hiring standards of the occupation), the number of graduates declined from 716 in 1984 to 521 in 1987. Under current conditions, about 20% fewer students per year should complete this course than in the past.

Activity of Graduates

A much larger-than-average proportion of these graduates pursue their program on a part-time basis. A smaller-than-average proportion enter the labour force and, although a larger-than-average proportion find jobs, about a three-times larger-than-average proportion work only part-time. The unemployment rate of these graduates was lower than the average for other graduates at this level, largely the result of individuals choosing part-time employment as opposed to unemployment.

Graduates Who Entered the Labour Force

The majority of these graduates find work as nursing attendants in the health and social service industries, while smaller numbers take jobs in welfare and community services or personal services, or as receptionists, information clerks and child care workers. Regardless of occupation, 1986 graduates earned about 15% less than the average for other graduates at this level in 1988. Graduates from this field of study generally face job competition from trade/vocational graduates with a diploma or certificate in nursing aide or orderly and community college graduates with a diploma or certificate in Other nursing fields. About 65% of 1982 graduates changed jobs over the 1984-to-1987 period, generally moving amongst various personal service occupations as well as among welfare and community service occupations. Their average salary rose more slowly over the this period than the average for other graduates at this level.

The Course in Retrospect

A larger-than-average proportion of social service graduates (75%) would choose the same educational program again. This reflects the larger-than-average proportion who found jobs related to their education, the lower-than-average proportion who felt overqualified for their work and the high level of job satisfaction. This situation remained stable between 1984 and 1987, with the exception that a higher percentage were working only part-time in 1987.

Social Services

Career Program
Community College (2 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,628	1,921	1,965	1,905	1,874
% Women Graduates	86.7	86.5	85.2	85.9	87.8
% of Total Graduates at this Level	3.3	3.3	3.4	3.4	3.4

Activity of Graduates	Social Services Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	7	25
Did Not Enter Labour Force	4	3
Part-time Students Already in Labour Force	12	7
Entered Labour Force	77	65

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	76	15	9
Average for all Fields at this Level	75	12	13

Working Full-time

Social Services (31%)
- Social Workers (16%)
- Welfare and Community Service Workers (3%)
- Educational Counselling (3%)
- Psychologists (3%)

Services (24%)
- Child Care Workers (19%)
- Food and Beverage Servers (2%)

Teaching (18%)
- Elementary and Kindergarten Teachers (11%)
- Teachers of Exceptional Students (5%)

Other (27%)
- Clerical (7%)
- Medicine and Health (6%)
- Sales (2%)

Social Sciences and Services

Social Services

Career Program
Community College (2 years)

People entering this field study child care, youth services, gerontology, care for disabled people and domestic science. Admission requirements vary depending on the program and institution, but in general, applicants must have completed high school courses in mathematics and English (French) and have some related work experience. Applicants with high school credits in history, geography, and other social sciences are generally given preference. Most colleges also require applicants to pass a diagnostic English (French) test, undergo an interview and provide letters of reference. These programs are offered in all provinces except New Brunswick and can be completed within two years, sometimes as part of a CO-OP program. Women make up the majority of graduates, accounting for 85% of the 1987 total.

Graduate Trends and Projections

The relative popularity of this course remained fairly constant over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 5% more over the 1989-to-1995 period that it was between 1981 and 1987.

Activity of Graduates

A much smaller-than-average proportion of these graduates continued their education upon graduating, with a larger proportion than average choose to immediately look for a job instead. The proportion receiving their diploma or certificate on a part-time basis was greater than average, implying that many people use this course to upgrade or change their skills while working. Although a larger-than-average proportion of these graduates were successful in finding a job, a larger proportion than average were working only part-time. Unemployment among these graduates declines over time, largely a result of increases in part-time work.

Graduates Who Entered the Labour Force

Most social service graduates work as child-care workers in the health and social service industry, while smaller numbers work as social workers or elementary/kindergarten teachers. Graduates from this course generally compete for jobs among themselves and with trade/vocational and community college graduates in education and counselling, and with university graduates in education (non-teaching), sociology and psychology.

Two years after graduation, 1986 graduates were earning about 5% less than other graduates at this level, regardless of occupation. Between the third and fifth years after graduation, the salaries of these graduates increased at a slower rate than the average. Over this period a slightly greater-than-average proportion changed jobs, usually moving between child-care, community service and teaching occupations. About 55% of 1982 graduates who were child-care workers in 1984 were still child-care workers in 1987.

The Course in Retrospect

The transition from school to work appeared to be a positive experience for these graduates, as indicated by a greater proportion than average being satisfied with their current job. This probably results from a relatively strong match between field of study and current job, smaller-than-average numbers feeling overqualified and a lower-than-average unemployment rate. Two out of every three 1986 graduates indicated that they would make the same educational decisions if the choice were to be made again. Between the third and fifth years of their careers, these graduates tended to become disillusioned with their job, with a larger proportion feeling overqualified and fewer being content with past educational decisions, although more felt that their current job matched their educational background in 1987 than did in 1984.

Social Work and Social Welfare

Undergraduate
University (3 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	1,503	1,561	1,724	1,774	1,841
% Women Graduates	78.1	80.8	80.4	80.8	81.5
% of Total Graduates at this Level	1.5	1.4	1.4	1.4	1.4

Activity of Graduates	Social Work and Social Welfare Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	6	14
Did Not Enter Labour Force	2	5
Part-time Students Already in Labour Force	22	20
Entered Labour Force	70	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	88	7	5
Average for all Fields at this Level	80	10	10

Working Full-time

Social Sciences (81%)	Services (6%)	Clerical (4%)	Other (9%)
• Social Workers (50%) • Occupations in Welfare and Community Services (20%) • Educational and Vocational Counsellors (7%) • Other Occupations in Social Sciences and Related Fields (3%)			

Social Work and Social Welfare

Undergraduate
University (3 years)

People entering this field are trained to help individuals resolve conflicts and problems in personal and social life. Enrollments are generally limited and entry standards are strict. Admission requirements vary depending on the university, but in general, applicants must complete high school (Diploma of Collegial Studies in Quebec) with good grades in mathematics and English (French). In many cases, significant related work experience may be substituted for a high school diploma. Most universities require applicants to undergo an interview and to pass aptitude tests. Universities throughout Canada except those in Prince Edward Island offer undergraduate degrees in social work, which can be completed in three years, sometimes as part of a CO-OP program combining study with work. Women accounted for 80% of 1987 graduates.

Graduate Trends and Projections

The relative popularity of this course remained fairly stable over the 1981-to-1987 period. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of social work graduates who completed their degrees through part-time study was slightly above average, and the proportion who continued their education after graduating was well below average. Consequently, these graduates were more apt to look for work immediately upon graduation than others at this level, and they were much more successful in finding it. The proportion who found full-time jobs was significantly above the average, and the proportion who found part-time jobs was slightly below average. Their unemployment rate was about one-half the average.

Graduates Who Entered the Labour Force

Most social work graduates find work as social workers and in related occupations in welfare and community services, and as educational and vocational counsellors in the health and social services sector, provincial and local governments and in the educational sector. They compete with university and community college graduates in psychology, sociology and, to a lesser extent, nursing for available positions in social work and related occupations.

Two years after graduation, these graduates earned about the same as the average for all other graduates at this level, regardless of occupation. The earnings of 1982 graduates, however, grew at a much slower rate between 1984 and 1987 than the average. Many changed jobs between the third and fifth years of their careers, but most of these job changes occurred only among positions in social work and related occupations, and in educational and vocational counselling.

The Course in Retrospect

Graduates in social work were fairly satisfied with their educational experience, as a higher-than-average proportion reported that they would make the same educational choices again. Moreover, the proportion who found jobs matching their undergraduate training was significantly above average and the proportion who believed themselves to be overqualified for their jobs was significantly below average. About 90% reported that they were satisfied with their jobs, which was similar to the average. Furthermore, overall working conditions for these graduates improved significantly in terms of employment and earnings but remained fairly steady in terms of job satisfaction between the third and fifth years of their careers.

Social Work and Social Welfare

Master's
University (2 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	391	446	526	521	495
% Women Graduates	67.3	73.8	78.1	79.6	79.2
% of Total Graduates at this Level	2.7	2.7	3.0	3.0	3.0

Activity of Graduates	Social Work and Social Welfare Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	1	6
Did Not Enter Labour Force	2	6
Part-time Students Already in Labour Force	33	33
Entered Labour Force	64	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	84	10	6
Average for all Fields at this Level	84	9	7

Working Full-time

Social Sciences (66%)
- Social Workers (54%)
- Welfare and Community Services (6%)
- Educational and Vocational Counsellors (3%)

Managerial and Administrative (15%)
- Personnel and Related (6%)
- General Managers (4%)
- Managers in Social Sciences (3%)

Teaching (6%)
- University (3%)
- Community College and Vocational (3%)

Other (13%)

Social Work and Social Welfare

Master's
University (2 years)

People in this field at the graduate level specialize in such areas as alcohol and drug counselling, and family and marriage counselling. Entry requirements vary depending on the institution, but in general, applicants must have an undergraduate honours degree in this or a closely related field of study (e.g., psychology or sociology). Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference; preference is given to those with relevant work experience. Graduate programs in social work are offered in all provinces except Prince Edward Island and New Brunswick and can normally be completed within two years, sometimes as part of a CO-OP program combining study and work. A few universities offer graduate diploma or certificate programs that are shorter in duration but which still require applicants to possess an undergraduate degree. Women accounted for 78% of 1987 graduates, up from 67% in 1981.

Graduate Trends and Projections

The relative popularity of this course held constant over the 1981-to-1984 period but has since risen. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 10% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A larger proportion of social work graduates chose to enter the labour market and a much smaller proportion continued their education after receiving their degrees than other master's graduates. The proportion who pursued their degrees on a part-time basis was about average. Although these graduates were more likely than average to enter the labour force, they were just as successful as others in finding full-time work, and their unemployment rate was slightly below average.

Graduates Who Entered the Labour Force

The majority of these graduates find employment as social workers in the health and social service industries, while a smaller number work in welfare and community service occupations and as personnel and related officers. Regardless of occupation, 1986 graduates earned about the same in 1988 as other master's graduates. Graduates from this field of study generally face job competition from other master's graduates in the same field.

About 70% of 1982 graduates had changed jobs by 1987, mostly moving out of social work into management positions. Their average salary increased at about the same pace over the 1984-to-1987 period as that of other master's graduates.

The Course in Retrospect

An almost average proportion of social workers (75%) would choose the same educational program if the choice had to be made again. Although their incomes were slightly lower than average, a larger proportion than average found jobs that matched their educational training and a lower proportion than average felt overqualified for their jobs.

This situation changed little over the 1984-to-1987 period, with the exceptions that a larger proportion of social workers were satisfied with their jobs and a larger proportion had found jobs related to their education in 1987 than in 1984.

Sociology

Undergraduate
University (3 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	3,007	2,936	3,542	3,655	3,799
% Women Graduates	62.6	68.9	69.1	69.4	70.0
% of Total Graduates at this Level	3.0	2.7	3.0	3.0	3.0

Activity of Graduates	Sociology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	14	14
Did Not Enter Labour Force	6	5
Part-time Students Already in Labour Force	22	20
Entered Labour Force	58	61

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	77	12	11
Average for all Fields at this Level	80	10	10

Working Full-time

Managerial and Administrative (21%)
- Sales and Advertising Managers (6%)
- Other Managers and Administrators (4%)
- Occupations Related to Management and Administration (3%)
- General Managers and Other Officers (2%)

Clerical and Related (20%)
- Bookkeepers and Accounting Clerks (5%)
- Secretaries and Stenographers (4%)
- Cashiers and Tellers (2%)

Social Sciences (19%)
- Social Workers (9%)
- Occupations in Social Work and Related Fields (2%)

Teaching (14%)
- Elementary and Kindergarten Teachers (6%)
- Secondary School Teachers (4%)
- Elementary and Secondary School Teaching and Related (2%)

Other (26%)
- Services (14%)
- Sales (8%)

Social Sciences and Services

Sociology

Undergraduate
University (3 years)

Individuals entering this field apply the principles of sociological research in such areas as ethnic group relations, social psychology, the family and marriage, population studies, criminology, and religion and society. Admission requirements vary depending on the university, but in general, applicants must complete high school with good grades, especially in the humanities, social sciences and mathematics. Quebec students must have a Diploma of Collegial Studies. Major universities throughout Canada offer degree programs, which students typically complete in three years. Women accounted for 70% of 1987 graduates as compared to 63% in 1981.

Graduate Trends and Projections

The relative popularity of this course declined slightly over the 1981-to-1984 period but has since risen to its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The proportion of sociology graduates who complete their degrees through part-time study is slightly above average, while the proportion who continue their education is about average. A smaller-than-average share immediately look for work upon graduation, of whom the proportion who find full-time jobs is slightly below average, while the proportion who obtain part-time jobs is slightly above average. The rate of unemployment for these graduates is only slightly above the average.

Graduates Who Entered the Labour Force

Sociology graduates find jobs in a wide variety of occupations, ranging from social workers to elementary and secondary school teachers, sales and advertising managers, secretaries and stenographers. Employment is found in the health and social services sector, the educational sector, federal and provincial governments, and in business service industries. For teaching positions, these graduates must first obtain an education degree and then compete with university graduates in all fields. For social work positions, they must compete with university graduates at all levels in psychology and social work, and for management jobs they compete primarily with community college and university graduates in commerce.

Regardless of occupation, 1986 graduates earned virtually the same average income two years after graduating as all other graduates at this level. The earnings of 1982 graduates, however, grew at a somewhat slower rate than the average between 1984 and 1987. Many changed jobs between the third and fifth years of their careers, moving from the clerical occupations into elementary school teaching, government administration or various sales occupations.

The Course in Retrospect

Graduates in sociology were somewhat unhappy with their educational experience, as a significantly smaller-than-average proportion reported that they would make the same educational choices again. Moreover, the proportion who found jobs matching their undergraduate training was also sharply below the average, while the proportion who believed themselves to be overqualified for their jobs was substantially above average. With their earnings matching the average, only about 75% of sociology graduates reported that they were satisfied with their jobs, significantly below the average. Overall working conditions for these graduates improved significantly, however, in terms of employment, job satisfaction and earnings between the third and fifth years of their careers.

Sociology

Master's
University (3 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	215	242	293	291	277
% Women Graduates	41.9	54.1	65.9	67.1	66.7
% of Total Graduates at this Level	1.5	1.5	1.7	1.7	1.7

Activity of Graduates	Sociology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	14	6
Did Not Enter Labour Force	7	6
Part-time Students Already in Labour Force	26	33
Entered Labour Force	53	55

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	71	15	14
Average for all Fields at this Level	84	9	7

Working Full-time

Teaching (23%)	Social Sciences (21%)	Managerial and Administrative (15%)	Artistic, Literary and Recreational (8%)	Other (33%)
• University and Related (18%) • Community College and Vocational (5%)	• Social Workers (11%) • Sociologists (5%) • Social Work and Related (5%)	• Other Managers and Administrators (10%) • Managers in Social Sciences (5%)	• Writers and Editors (8%)	

Social Sciences and Services

Sociology

Master's
University (3 years)

At the graduate level in this field, individuals specialize in such areas as social theory, the sociology of industry and work, social structures and criminology. Admission requirements vary depending on the university; but in general, applicants must have an undergraduate honours degree in this or a closely related field. Most universities require applicants to undergo an interview, pass graduate admission tests and provide letters of reference. This program is offered in all provinces except Prince Edward Island and can normally be finished within three years, sometimes as part of a CO-OP program combining study and work. A few universities offer graduate diploma or certificate programs that are shorter in duration but which still require applicants to possess an undergraduate degree. Women accounted for 66% of 1987 graduates, up from 42% in 1981.

Graduate Trends and Projections

The relative popularity of this course held constant over the 1981-to-1984 period but has since risen slightly. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 15% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

A much lower-than-average proportion of sociology students pursued their degrees on a part-time basis, and a larger proportion than average continued their education after receiving their master's degrees, underlining the value of a doctorate in enhancing career prospects. Of those who entered the labour market, a larger-than-average proportion were working part-time and a smaller-than-average proportion full-time; their unemployment rate was twice the average.

Graduates Who Entered the Labour Force

The majority of these graduates find work as university teachers, whereas a smaller number work as sociologists, social workers, community college teachers and writers and editors. Regardless of occupation, 1986 graduates earned 15% less in 1988 than the average for all master's graduates. Graduates from this field of study generally face competition from people with an undergraduate degree or a doctorate in sociology.

About 50% of 1982 graduates from this field changed jobs between 1984 and 1987, mostly moving out of social work into occupations related to management and administration. Their average salary increased somewhat faster over the 1984-to-1987 period than that of other master's graduates.

The Course in Retrospect

An approximately average proportion of sociology graduates would select the same educational program if they had to make the choice again. This may reflect their somewhat greater-than-average likelihood of finding work which matched their educational training and their relatively high level of job satisfaction, as well as the fact that a slightly lower-than-average proportion felt overqualified for their job. This situation changed little over the 1984-to-1987 period, with the exceptions that the proportion who expressed satisfaction with their job and the proportion who found work related to their educational training increased greatly.

Sociology

Doctorate
University (5 years)

Social Sciences and Services

Graduate Trends and Projections	1981	1984	1987	1989	1995
Number of Graduates	41	47	49	55	55
% Women Graduates	36.6	38.3	38.8	39.5	39.3
% of Total Graduates at this Level	2.3	2.5	2.1	2.1	2.1

Activity of Graduates	Sociology Graduates (%)	All Graduates at this Level (%)
Immediately Continued Education	2	3
Did Not Enter Labour Force	4	2
Part-time Students Already in Labour Force	19	20
Entered Labour Force	75	75

Graduates Who Entered the Labour Force	Working Full-time (%)	Working Part-time (%)	Unemployed (%)
This Field Only	86	8	6
Average for all Fields at this Level	88	7	5

Working Full-time

Teaching and Related (72%)
- University Teachers (43%)
- University Teaching and Related (22%)
- Community College and Vocational School Teachers (7%)

Managerial and Administrative (21%)
- Financial Managers (7%)
- Services Managers (7%)

Clerical and Related (7%)

Social Sciences and Services

Sociology

Doctorate
University (5 years)

At the doctoral level in sociology, individuals specialize in such fields as social theory, the sociology of industry and work, social structures and criminology. Admission requirements vary depending on the university, but all applicants must have a master's degree with high standing. Most universities require applicants to undergo an interview and provide letters of reference. Major universities in all provinces except Newfoundland, Prince Edward Island, Nova Scotia, Manitoba and Saskatchewan award doctorates, which students normally finish within five years. Women obtained 39% of all doctorates awarded in 1987.

Graduate Trends and Projections

The relative popularity of this course rose marginally over the 1981-to-1984 period but has since fallen to below its 1981 level. The number of graduates is a good indicator of the number of people who compete for similar types of jobs. Under current conditions, it is expected that the number of graduates from this course will be about 20% more over the 1989-to-1995 period than it was between 1981 and 1987.

Activity of Graduates

The share of sociology doctorates who complete their programs through part-time study and who are already in the labour market is about average. Few continue with post-doctoral studies, and the proportion who look for employment immediately upon completion of their doctorates is about average. Almost 90% find full-time employment, with many of the rest finding part-time employment. At 6%, their rate of unemployment is slightly higher than the average.

Graduates Who Entered the Labour Force

Sociology doctorates generally obtain employment as university professors, community college and vocational teachers, and financial managers and service managers in provincial and local government. They face virtually no direct competition from doctorates in other fields for university teaching positions, but they must compete with university graduates from other fields (especially law and history) for government positions. Two years after graduation, 1986 doctorates were earning somewhat more than all others on average. Earnings for 1982 doctorates, however, rose at a somewhat slower rate over the 1984-to-1987 period than the average. Virtually none changed occupations between the third and fifth years of their careers.

The Course in Retrospect

Sociology doctorates appeared to be fairly dissatisfied with their education experience, as the proportion who reported that they would make the same educational choices again was sharply below the average. The proportion who found jobs that matched their training was also below average, and the proportion who believed that they were overqualified for their jobs was sharply higher than average. Ninety percent reported that they were satisfied with their jobs, however. Overall working conditions for these doctorates improved somewhat in terms of employment and earnings but deteriorated in terms of job satisfaction between the third and fifth years of their careers.

Subject Index

Bold type indicates a major Field of Study.

A

- Abnormal Psychology 350
- Accounting 24 - 33, 48
- Acting 12
- Actuarial Mathematics 310 - 315
- Addiction Counselling 68
- **Administration (Specialized) 64 - 67**
  - Health Care
  - Hotel
  - Restaurant
- Adult Education 68, 76 - 81
- Advertising 4 - 7
- Aerial Surveying 166
- Aeronautical Engineering 158, 160 - 163
- Aeronautics 318 - 321
- Agricultural Equipment Mechanics 156
- **Agriculture 254 - 257**
  - Animal and Plant Science
  - Horticulture
  - Landscaping
- **Agriculture (Other) 262 - 265**
- Air Conditioning / Heating 132 - 135
- Aircraft Mechanics 156
- Air Transport Technology 174
- Analytic Chemistry 292 - 297
- Anatomy 210
- **Animal and Plant Sciences 258 - 261**
  - Animal Husbandry
  - Crop Science
  - Horticulture
  - Plant Protection
  - Poultry Science
- Animal Physiology 266 - 271
- **Applied Arts 2**
  - Ceramics
  - Drawing
  - Fashion Design
  - Graphic Arts
  - Industrial Design
  - Interior Design
  - Photography
- **Architectural and Construction Technologies (Other) 102**
  - Carpentry
  - Electrical
  - Drywall
  - Heating / Insulation
  - Interior Finishing
  - Masonry
  - Metal Working
  - Plumbing
  - Welding
  - Wood Working
- Architectural Art 94
- **Architectural Design / Draughting Technologies 94 - 97**
  - Architectural Art
  - Architectural Draughting
  - Civil Technology
  - Draughting
  - Structural Technology
- Architectural Draughting 94
- **Architecture 104 - 107**
  - Environmental Controls
- Archive Maintenance 194
- Art Gallery Administration 194
- Arts 2 - 23
- Astronomy 316 - 321

- Astrophysics 316
- Audiology 248 - 251
- Audio-Visual Arts 14 - 17
- **Auto Body Repairs 150**
- **Auto Mechanics 152**
- Avionics Technologies 134

B

- Baking 358
- Banking 34
- Barbering 22
- Bartending 358
- Biochemistry 210 - 213, 294 - 297
- Biochemistry Technologies 114
- **Biology 266 - 271**
  - Animal Physiology
  - Botany
  - Cell Biology
  - Ecology
  - Genetics
  - Marine
  - Microbiology
- Biomedical Engineering 160 - 163
- Biophysics 210, 320
- Bookkeeping 48
- Botany 266 - 271
- Bridge Construction 122
- Business Administration 26 - 29
- Business, Commerce, Management and Administration 24 - 67

C

- Carpentry 98, 102
- Cartography 168 - 171, 328
- Cell Biology 266 - 271
- Ceramics 2
- Chefs 356
- **Chemical Engineering 108 - 113**
  - Petrochemical
  - Polymer
  - Pulp and Paper
- **Chemical Engineering Technologies 114**
  - Biochemistry
  - Industrial (textiles / plastics)
  - Photographic Chemicals
- **Chemistry 292 - 297**
  - Analytic
  - Biochemistry
  - Inorganic
  - Organic
  - Physical
  - Quantum
  - Radiochemistry
- Child Behaviour Psychology 350
- Child Care 362 - 365
- Childhood Education 68
- Cinematography 200 - 203
- Circuitry Technologies 134

- **Civil Engineering 116 - 121**
  - Contruction Project Management
  - Electrical Energy Conversion
  - Geotechnical Engineering
  - Highway Engineering
  - Municipal Engineering
  - Structural Analysis
  - Structural Design
- Civil Surveying 166
- **Civil Technologies 122 - 125**
  - Bridge Construction
  - Civil Engineering
  - Municipal Engineering
  - Piping
  - Road Construction
  - Structural Engineering
- Clinical Psychology 350
- Cognitive Psychology 350
- **Commerce (Business Administration) 24 - 29**
  - Accounting
  - Finance
  - Industrial Relations
  - Marketing
  - Personnel Management
- **Commercial and Promotional Arts 4 - 7**
  - Advertising
  - Modelling
- Commercial Electrician 132
- Community Development 338
- Community Medicine 244
- Computer Engineering 158
- **Computer Science 298 - 305**
  - Data Processing
  - Hardware
  - Programming
  - Software
  - Systems Analysis
  - Systems Design
- Construction Electrical Work 102
- Construction Project Management 118
- **Construction Technologies 98**
  - Carpentry
  - Heat / Insulation
  - Interior Finishing
  - Masonry
  - Metal Working
  - Plastering
  - Plumbing
  - Wood Working
- Consumer Studies 274
- Cooks 356
- Cosmetology 22
- **Creative and Design Arts 8 - 11**
  - Fashion Arts
  - Interior Decorating
- Creative Writing 178 - 181, 184 - 187
- Crop Science 260
- Crystallography 306

D

- Dance 12
- Data Processing 298
- Dendrology 280
- **Dental Hygiene / Assistant Technologies 218 - 221**
- Dental Nursing 236
- **Dentistry 214 - 217**
- Design Arts 8 - 11
- Dietary Administration 358
- Draughting 96, 168 - 171

E

- Ecology 266 - 271, 278
- **Economics 322 - 327**
- Education 68 - 93
- **Education and Counselling 68**
  - Addiction Counselling
  - Adult Education
  - Childhood Education
  - Financial Counselling
  - Industrial Arts
  - Marriage Counselling
  - Teacher Training
- **Education (Non-Teaching) 70 - 75**
  - Administration
  - Guidance / Counselling
  - Library Science
  - Measurement / Evaluation
  - Psychology
- **Electrical / Electronic Engineering Technologies 132 - 135**
  - Air Conditioning / Heating
  - Avionics
  - Circuitry
  - Commercial Electrician
  - Electrical Inspection
  - Electrodynamics
  - Electronic Switching
  - Electronic Transistors
  - Hydro Electrician
  - Industrial Electrician
  - Integrated Circuits
  - Marine
  - Refrigeration
- Electrical Energy Conversion 118 - 121
- **Electrical Engineering 126 - 131**
- Electrical Inspection 132
- Electrical Welding 100
- Electrodynamics 132
- Electronic Switching 132
- Electronic Transistors 132
- **Elementary / Secondary Teacher Training 76 - 81**
  - Adult / Continuing Education
  - Vocational Training
- Embryology 210
- Endocrinology 210
- Engineering and Engineering Technologies 94 - 175
- **Engineering (Other) 158 - 163**
  - Aeronautical
  - Biomedical
  - Computer
  - Geological
  - Industrial
  - Metallurgical
  - Mining
  - Petroleum
- **Engineering Technologies (Draughting) 170**
  - Cartography
  - Draughting
- **Engineering Technologies (Other) 168**
  - Draughting
- **Engineering Technologies (Surveying) 166**
  - Aerial
  - Civil
  - Gravity
  - Hydrographic
  - Magnetometer
  - Seismic
- **English 176 - 181**
  - Creative Writing
  - Language
  - Literature
- **Environmental and Conservation Technologies 272**
- Environmental Controls 104 - 107

- Environmental Design 336
- Environmental Management 328 - 333
- Environmental Studies 338
- Extractive Technologies 284

F

- Family Studies 274
- Fashion Arts 8 - 11
- Fashion Design 2
- Feedback Systems 146
- Film Production 200 - 203
- Finance 26 - 29
- Financial Counselling 68
- **Financial Management (Accounting) 30 - 33**
- **Financial Management (Other) 34**
  - Banking
  - Investment Management
  - Property Management
  - Real Estate Appraisal
- **Fine Arts 12**
  - Acting
  - Dance
  - Handicrafts
  - Music
  - Painting
  - Sculpture
- Fishing Technologies 284
- **Food and Household Sciences 274**
  - Consumer Studies
  - Family Studies
  - Food Science
  - Household Science
  - Nutrition
- **Food Processing Technologies 276**
- Food Science 274
- **Forestry 278 - 281**
  - Dendrology
  - Ecology
  - Forestry Economics
  - Harvesting
  - Resource Management
  - Wildlife Management
  - Wood Science
- Forestry Economics 278
- Forestry Resource Management 278
- **Forestry Technologies 282**
- **French 182 - 187**
  - Creative Writing
  - Language
  - Literature

G

- Genetics 210, 266 - 271
- Geochemistry 306
- Geodynamics 306
- **Geography 328 - 333**
  - Cartography
  - Environmental Management
  - Geomorphology
  - Hydrology
- Geological Engineering 160 - 163
- **Geology 306 - 309**
  - Crystallography
  - Geochemistry
  - Geodynamics
  - Mineralogy
- Geomorphology 330 - 333
- Geotechnical Engineering 118 - 121
- Geriatric Care 362 - 365
- Geriatric Nursing 234

- Gerontology 364
- **Graphic and Audio-Visual Arts 14 - 17**
  - Photography
  - Printing
  - Publishing
  - Recording Music
- Graphic Arts 2
- Gravity Surveying 166
- Guidance / Counselling 70 - 75

H

- Hairdressing 22
- Hairstyling 22
- Handicrafts 12
- Harvesting 278
- Health Care Administration 66
- **Health (Other) 240 - 245**
  - Community Medicine
  - Dental Hygiene
  - Immunology
  - Microbiology
  - Optometry
  - Pathology
  - Preventive Medicine
  - Public Health
  - Radiological Technology
- Heat and Thermodynamics 316
- Heat / Insulation 98, 102
- **Heavy Equipment Mechanics 154**
- Highway Engineering 118
- **History 188 - 193**
- Horticulture 254, 258 - 261
- Hospital Management 36
- Hotel Administration 66
- Hotel and Resort Management 36
- Household Science 274
- Humanities 176 - 209
- Hydro Electrician 132
- Hydrographic Surveying 166
- Hydrology 330 - 333

I

- Immunology 242 - 245
- Industrial Arts 68
- Industrial Design 2
- Industrial Electrician 132
- Industrial Engineering 158 - 163
- **Industrial Engineering Technologies 136**
- **Industrial Engineering Technologies (Machinist) 138**
- **Industrial Engineering Technologies (Manufacturing) 140**
- Industrial Relations 24 - 29
- Inorganic Chemistry 292 - 297
- **Institutional Management 36**
  - Hospitals
  - Hotels and Resorts
- **Instrumentation 164**
- Integrated Circuits 132
- Intensive Care Nursing 234
- Interior Decorating 8 - 11
- Interior Design 2
- Interior Finishing 98, 102
- Interpretation and Translation 198
- Investment Management 34

J K L

- Journalism 200
- Kinanthropology 82 - 87
- Kindergarten Teaching 92
- Kinesiology 82 - 87
- Kinetics 84
- Landscaping 254
- **Law 334**
- **Library and Records Science 194**
  - Archive Maintenance
  - Art Gallery Administration
  - Museology
  - Museum Curatorship
- **Linguistics, Translation and Interpretation 196 - 199**

M

- Machinist 138
- Magnetometer Surveying 166
- **Management and Administration (Business and Commerce) 38 - 41**
- Manicuring 22
- Manufacturing (Specialized Trades) 140
- Marine Biology 266
- Marine Mechanics 156
- Marine Technologies 134
- Marine Transport Technology 174
- **Marketing 42**
- Marketing 24 - 29, 42
- Marriage Counselling 68
- Masonry 98, 102
- **Mass Communication 200 - 203**
  - Cinematography
  - Film Production
  - Journalism
  - Public Relations
  - Radio and Television Broadcasting
- Mathematical Physics 316
- **Mathematics 310 - 315**
  - Actuarial
  - Statistics
- **Mechanical Engineering 142 - 147**
  - Feedback Systems
  - Systems Design
  - Thermodynamics
- **Mechanical Engineering Technologies (Other) 156**
  - Agricultural Equipment
  - Aircraft
  - Marine
  - Small Engine
- **Mechanical Technologies 148**
- Mechanics 148, 154 - 157, 316
- **Medical and Surgical Specialties 224**
- **Medical Laboratory Technologies 222**
- **Medical Sciences (Basic) 210 - 213**
  - Anatomy
  - Biochemistry
  - Biophysics
  - Embryology
  - Endocrinology
  - Genetics
  - Pharmacology
  - Physiology
- Medical / Surgical Nursing 234
- Medicine and Health 210 - 253
- **Medicine (M.D.) 226**
- Metallurgical Engineering 158
- Metal Working 98, 102
- Microbiology 242 - 245, 266 - 269
- Mineralogy 306
- Mining Engineering 158 - 163
- Modelling 4 - 7
- Motor Transport Technology 174

Municipal Engineering 118 - 121, 124
Museology 174
Museum Curatorship 174
Music 18 - 21

N O

Natural Sciences and Primary Industries 254 - 291
Nursing 230 - 235
  Geriatric
  Intensive Care
  Medical / Surgical
  Obstetric
  Pediatric
  Psychiatric
  Public Health
Nursing Aide / Orderly 228
Nursing (Other) 236 - 239
  Dental
  Psychiatric
  Public Health
Nutrition 274

Obstetric Nursing 234
Occupational Therapy 248 - 251
Optometry 242 - 245
Organic Chemistry 292 - 297

P

Painting 12
Park / Wildlife Officers 88
Pathological Psychology 350
Pathology 244
Pediatric Nursing 234
Personal Arts 22
  Barbering
  Cosmetology
  Hairdressing
  Hairstyling
  Manicuring
Personnel Management 24
Petrochemical Engineering 110 - 113
Petroleum Engineering 160 - 163
Pharmacology 210
Pharmacy 246
Photographic Chemical Technologies 114
Photography 2, 14 - 17
Physical Chemistry 292
Physical Education 82 - 87
  Kinanthropology
  Kinesiology
  Kinetics
  Recreation
Physical Education Instructors 88
Physical Sciences 292 - 321
Physical Therapy 250
Physics 316 - 321
  Aeronautics
  Astronomy
  Astrophysics
  Heat and Thermodynamics
  Mathematical
  Mechanics
  Quantum Mechanics
Physiology 210
Physiotherapy 248
Pipeline Welding 100
Piping Technologies 122

Planning and Resource Management 336 - 339
  Community Development
  Environmental Design
  Environmental Studies
  Transportation Systems
Plant Protection 260
Plastering 98, 102
Plumbing 98, 102
Political Science 340 - 345
Polymer Chemical Engineering 110 - 113
Poultry Science 260
Preventive Medicine 244
Primary Technologies (Other) 284 - 287
  Extractive
  Fishing
  Prospecting
Printing 14 - 17
Promotional Arts 4 - 7
Property Management 34
Prospecting Technologies 284
Protection and Correction Services 346
Psychiatric Nursing 234 - 237
Psychology 348 - 353
  Abnormal
  Child Behaviour
  Clinical
  Cognitive Theory
  Pathological
  Social
Public Health 244
Public Health Nursing 234 - 237
Public Relations 202
Publishing 14 - 17
Pulp and Paper 110 - 113

Q R

Quantum Chemistry 292 - 297
Quantum Mechanics 316 - 321

Radio and Television Broadcasting 200 - 203
Radiochemistry 294 - 297
Radiography / Radiation Therapy / Nuclear Medicine Technologies 252
Radiological Technology 244
Rail Transport Technology 174
Real Estate Appraisal 34
Recording Music 14 - 17
Recreation and Physical Education 82 - 85
Refrigeration 132 - 135
Rehabilitation Medicine 248 - 251
  Audiology
  Occupational Therapy
  Physical Therapy
  Physiotherapy
  Rehabilitation Science
  Speech-Language Pathology
Rehabilitation Science 250
Religious and Theological Studies 204 - 209
Resource Processing Technologies 288
Restaurant Administration 66
Retail Sales 44 - 47
Road Construction 122

S

Sculpture 12
Secretary (Accounting / Bookkeeping) 48
Secretary (General) 50 - 53
Secretary (Legal) 54 - 57
Secretary (Medical) 58 - 61
Secretary (Word Processing) 62

- Seismic Surveying 166
- **Service Industries Technologies 354**
- **Service Industries Technologies (Cooking) 356**
  - Chefs
  - Cooks
- **Service Industries Technologies (Other) 360**
- **Service Industries Technologies (Other Food Preparation) 358**
  - Baking
  - Bartending
  - Dietary Administration
- Shipyard Welding 100
- Small Engine Mechanics 156
- Social Psychology 350
- Social Sciences and Services 322 - 375
- **Social Services 362 - 365**
  - Child Care
  - Gerontology
  - Youth Services
- **Social Work and Social Welfare 366 - 369**
- **Sociology 370 - 375**
- Speech-Language Pathology 248 - 251
- **Sports and Recreation 88**
  - Park / Wildlife Officers
  - Physical Education Instructors
  - Travel Agents / Counsellers
- Statistics 310 - 315
- Structural Analysis 118
- Structural Design 118
- Structural Engineering 124
- Structural Steel Welding 100
- Structural Technology 94
- Surgical Specialties 224
- Systems Analysis 298
- Systems Design 298, 146

T U V

- **Teaching (Other) 90 - 93**
  - Kindergarten
- Thermodynamics 146
- Translation and Interpretation 198
- **Transportation Engineering Technologies 172**
- Transportation Systems 338
- **Transportation Technologies 174**
  - Air Transport
  - Marine Transport
  - Motor Transport
  - Rail Transport
- Travel Agents / Counsellers 88

- **Veterinary Sciences and Medicine 290**
- Vocational Training 76

W X Y Z

- Welding 100 - 103
- **Welding Technologies 100**
  - Electrical
  - Pipeline
  - Shipyard
  - Structural Steel
- Wildlife Management 278
- Wood Science 278
- Wood Working 98 - 103

- Youth Services 364